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CONTENTS

PAGE

1. Handloom Industry in Madras State 3
   Sri K. V. Sivasankaran, M.A., Deputy Registrar of Co-operative Societies (Retired).
2. Geological Survey of India—A Perspective 7
   G. N. Dutt, Geological Survey of India.
3. Education at the Sainik School 11
4. Road Development in Madras State 15
5. Fresh Water Fisheries in Chingleput District 22
   Sri V. D. Spurgeon, Assistant Director of Fisheries (Information), Madras.
6. Manufacture of Cement by Shaft Kiln Process.. 24
7. Problem of Wild Life Conservation 28
   Sri T. Jayadev, Chief Conservator of Forests, Madras.
8. Preparation of Syrups and Rose water 32
9. Intensive Egg and Poultry Production-*cum*-Marketing Scheme. 34
   Dr. I. D. Mantramurti, Director of Animal Husbandry, Madras.
10. Gallantry Awards for Madras Police 36

THIS MONTH'S COVER

Lala Lajpatrai, the Centenary of whose birth was celebrated all over India, was one of our pioneer fighters for freedom. A lion-hearted patriot who, while working for the liberation of India from foreign thraldom, envisioned the pattern of social, political and economic development of the country and surprisingly enough the country has accepted his framework and has broadly followed the line of development charted out by him. We pay our homage to this great patriot.

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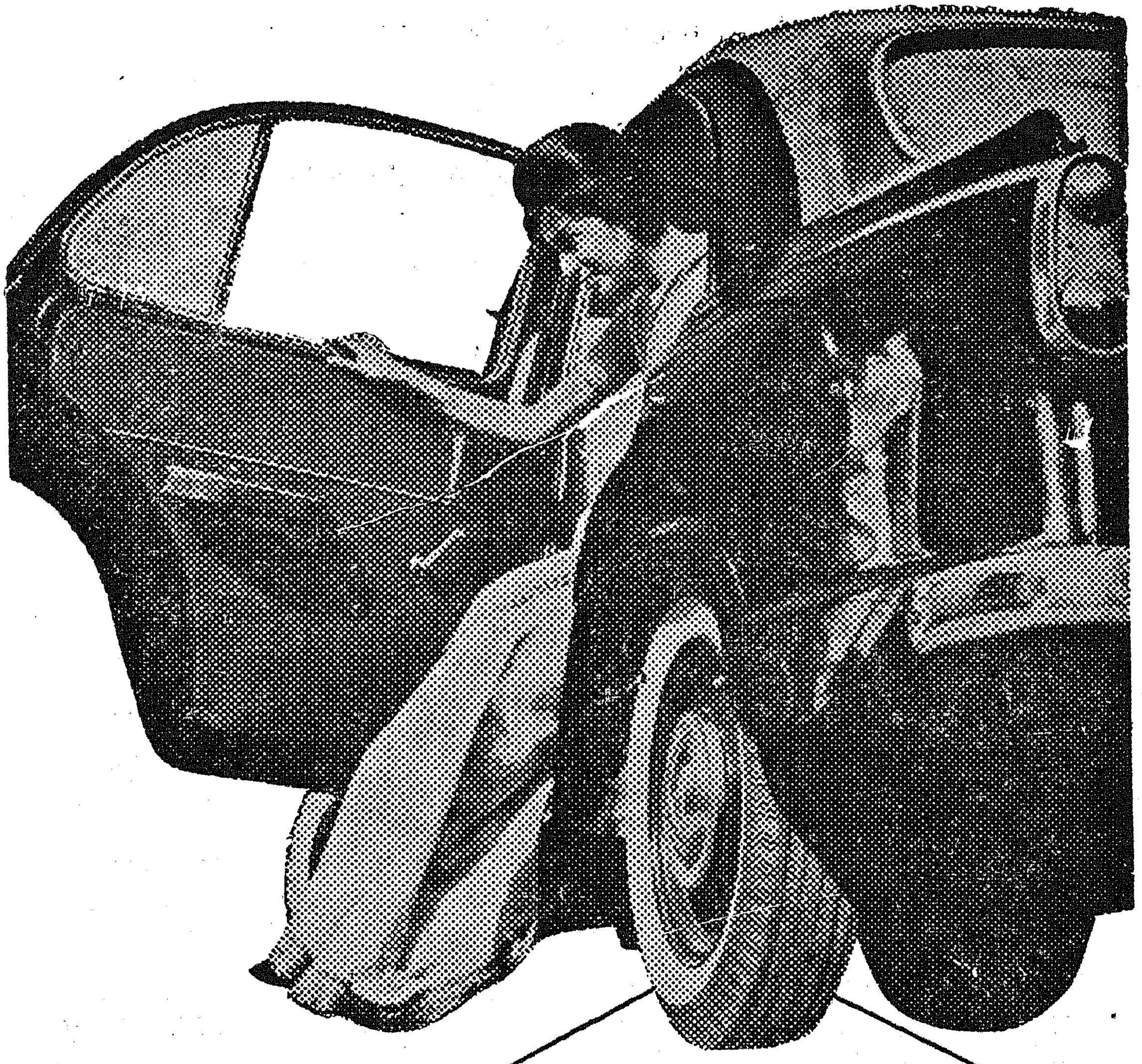

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Handloom Industry in Madras State

SRI K. V. SIVASANKARAN, M.A.,
Deputy Registrar of Co-operative Societies (Retired).

Our handloom industry had a glorious past. References to cloth in the Ramayana, Maha Bharatha, Vedas, Manusmrithi, Artha Sastra, Amrakosa, etc., show the antiquity of the industry. Our ancients had reached a high degree of perfection in the weaving of cotton cloth as revealed by the Mohanjodaro and Harappa excavations.

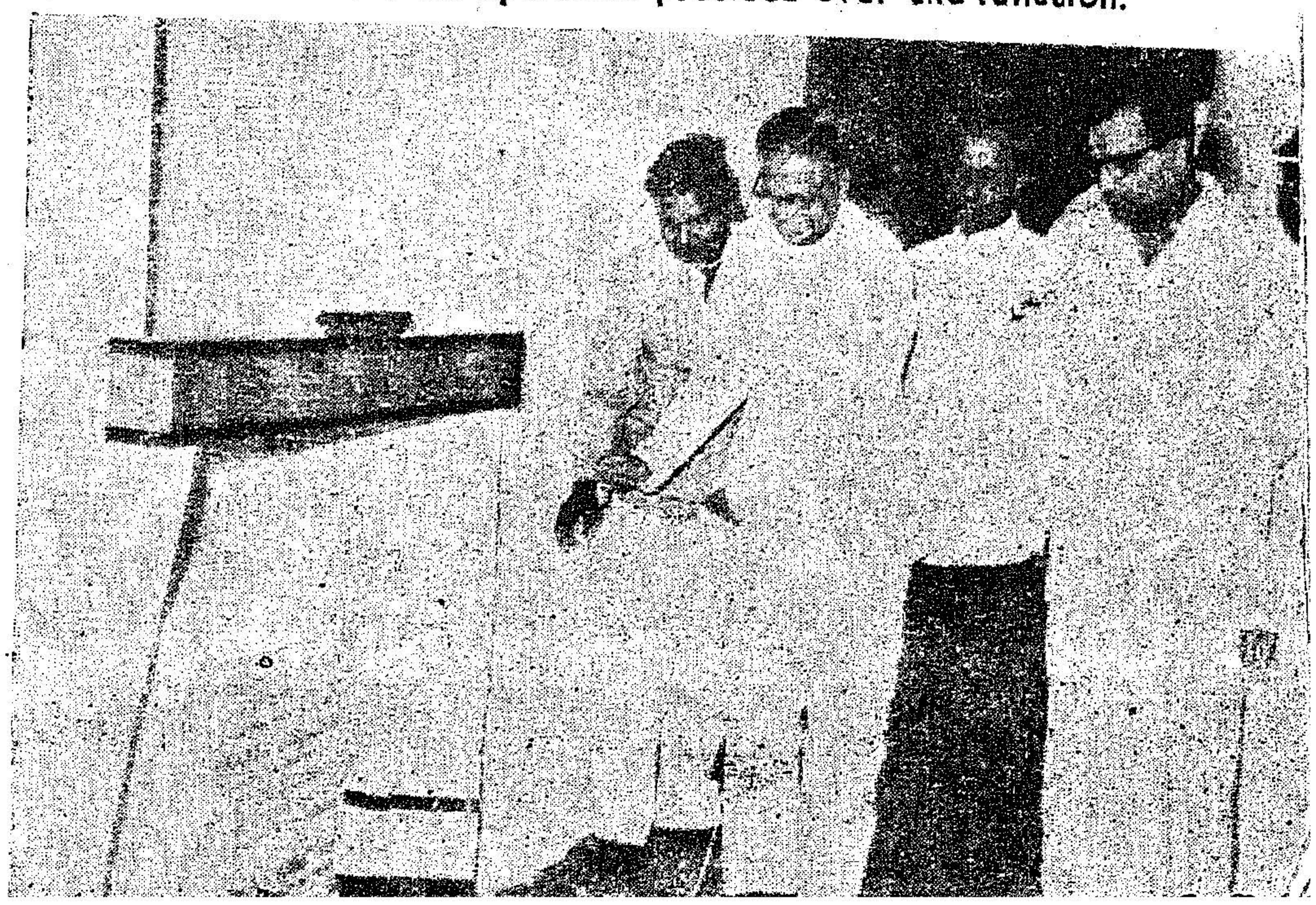
For 30 centuries prior to the first quarter of 19th century, India exported woollen, cotton and silk goods to the other parts of the world ; China, Japan, Arabia, Persia, parts of Africa, England and other countries in Europe were importing our handloom cloth. At the beginning of the 12th century, there were not less than 15 lakhs of looms in the country and the estimated production of cloth was not less than 1,500 million yards. The share of Madras was 300 to 350 million yards which were produced on about 3 lakhs of handlooms.

Though the East India Company encouraged hand weaving during their early days, as it brought them handsome profits, there was a reversal of their attitude after the Industrial Revolution in England. Between 1753 and 1814, the fly-shuttle the spinning jenny, the roller frame, the stream-engine and powerloom were invented. Textile mills were set up in Paisely and Manchester and British cotton goods came into the market. In order that the British Textile Industry might thrive, Britain used its political power to destroy the Indian cotton industry. India which was till the beginning of the 19th century an exporter of cotton goods began to import cotton cloth and cotton yarn thereafter. The exports of cotton cloth which were Rs. 166 lakhs in 1816–17 fell to Rs. 8 lakhs in 1831–32. Simultaneously the imports went up by leaps and bounds and English yarn found its way into India from 1826–27. The following figures are relevent in this connection :

Year	Export of cloth from India	Import of cloth into India	Import of yarn into India
	(RUPEES IN LAKHS.)		
1816–17	165·94	3·18	..
1826–27	39·48	43·46	75,276
1831–32	8·23	42·65	4,285,517

The cost of handspun yarn from which Indian weavers produced cloth was 300–400 per cent of the cost of the imported British Yarn ; handspinning declined gradually from 1852 onwards. Indian handlooms began to use imported English and Japanese yarns.

Industries Minister Sri R. Venkataraman declared open the Silver Jubilee Hall and godown of the Madras State Handloom Weavers Co-operative Society on 27th December 1964. Minister for Co-operation presided over the function.



Mr. Parker, Police Chief of Los Angels who paid a visit to Madras recently called on the Home Minister Sri P. Kakkan at this chambers.

The first Indian Cotton Textile Mill was established in Calcutta in 1818. In 1854, the Bombay Spinning and Weaving Mills was started for the production of cotton yarn and piece goods. There were only nine mills in the whole of South India excluding Bombay, in 1925 of which 4 were in Coimbatore. These mills produced cotton yarn which was stronger, more even and cheaper than hand spun yarn with the result that the handlooms adjusted their production and took to mill yarn. The old throw shuttle handloom using handspun yarn was driven out of existence yielding place to the new fly shuttle handlooms using mill yarn, imported as well as indigenous. Though the handlooms and mills could co-exist in the initial stages, the dependance of handloom on mill yarn and the conversion and spinning mills into composite spinning and weaving mills, led to competition between the mill sector and the handloom sector.

The All-India Handloom Board

During the Second World War, however, on account of shortage of cloth the handlooms had a temporary boom but after the war the handloom industry experienced one of the worst slumps, in the history of Indian Textile trade. The Government of India constituted the All-India Handloom Board in October 1952 and levied an excise duty on mill cloth for the development of handloom and khadi industries. The amount so collected is known as the cess fund. The policy of the Government was to organise Co-operative Societies for weavers and to give assistance to the Societies out of Cess Fund. Such assistance is :—

1. A loan repayable in two years towards share capital to encourage weavers to join societies.

2. Loans to Co-operatives towards working capital (This is now undertaken by the Reserve Bank of India).

3. Supply of improved appliances at subsidised rates.

4. Grants to Societies to meet the cost of staff in the initial stages.

5. A rebate on sales of handloom cloth by Co-operatives. The present rebate is 5 paise per rupee on retail sale and 3 paise per rupee on wholesale sales.

Handloom in Madras State

The number of handloom in Madras State at the end of the Second Five-Year Plan was 6,99,585 as shown below :—

Cotton looms (including mixed fabrics and Khadi).	5,89,925
Pure Silk looms	20,650
Pure Art Silk looms	88,784
Woollen looms	226

The estimated production of handloom cloth in Madras at the end of the Second Plan period was 512·04 million yards, of which 45·36 million yards were mixed fabrics with an admixture of mill yarn and art silk yarn, and 2·50 million yards were spurious khadi were the warp is mill yarn and weft handspun yarn. The production of pure cotton fabrics was 464·18 million yards. The output of the co-operative sector was 97·89 million yards. The assistance from Cess Fund covers, therefore, only 21·2 per cent of the production of handloom cloth in the State. Nearly four-fifths of handloom cloth is contributed by looms outside the co-operative sector and proposals are afoot to start a Handloom Finance Corporation to extend assistance to looms outside the Co-operative fold.

Variety-wise production of handloom cloth has been estimated as follows :—

	Million yards
Sarees	191·65
Dhoties, towels, uppers, shirtings, etc. ..	236·23
Export varieties	84·16
Total ..	512·04

(Export varieties include lungis and Madras handkerchiefs).

Of the above production, about only 50 per cent is consumed within the State and the rest exported. Out of such exports less than one-fifth is exported to the countries outside India and four-fiths or about 200 million yards are sent to other areas within the Indian Union.

The Future

The future of handloom industry depends in a large measure on our ability to satisfy the needs of consumers (1) within the State, (ii) outside the State but within

India and (iii) outside India. In view of the preference of our women for handloom sarees a good market for this variety is assured. Men in rural areas prefer handloom dhoties and towels. All Hindus use unbleached handloom goods for ceremonial occasions and weddings. With the reservation of certain varieties of cloth for handlooms there may be no falling off in the internal demand.

As for other areas in the Indian Union our handloom cloth is in demand practically in all the States. But the tests and requirements vary from State to State. These should be under constant study and we should produce quality goods at competitive rates to satisfy, their requirements. If for any reason there is a reduction in the off-take of our handloom cloth by other States, it will have far reaching repercussions on our industry since 20·12 lakhs or 6 per cent of our population is directly dependant on it. The exports of handloom cloth to territories outside the Indian Union are less than 10 per cent of our estimated production.

Exports

In 1951 the exports of handloom cloth to areas outside India stood at 43·699 million yards. In 1963 the total exports from Madras were 33·56 million yards of which Bleeding Madras constituted 12·66 million yards. If this is excluded, exports of conventional varieties are 20·90 million yards.

The following figures of exports in 1961–62 and 1962–63 are relavent in this connection :—

	Value of exports. (IN LAKHS OF RUPEES) 1961–62.	1962–63.
Cotton Fabrics (Standard type blankets, curtains, carpets, etc.)	613·18	754·35
Silk, synthetic fibres ..	253·63	266·66
Total ..	866·81	1,021·01

Destination-wise exports :—

Country	Value of exports. (IN LAKHS OF RUPEES) 1961–62	1962–63
Ceylon	154·73	114·43
Singapore	86·24	108·78
Malaya	114·35	95·04
Aden	67·59	40·87
Kuwait	8·72	13·37
Saudi Arabia	21·55	19·86
Kenya	9·19	12·08
Nigeria	121·43	100·39
Sudan	18·97	8·83
Sierroleone	31·85	21·87
Ethipia	9·96	7·89
United Kingdom	21·80	20·87
United States of America ..	128·45	377·66
Hong Kong	7·16	21·02
Others	64·83	57·15

Excluding U.S.A. which takes only Bleeding Madras, our export performance regarding conventional varieties is as follows :—

	(RS. IN LAKHS.)
1961–62	738·37
1962–63	643·35

Nigeria which takes our Madras Handkerchiefs recorded a peak figure of 15·7 million yards in 1953. In the years 1958–60 the off take was only 3·50 million yards (Rs. 5·3 million). There has since been an improvement in our performance, in 1961–62 and 1962–63, the exports to Nigeria were Rs. 12·14 millions and Rs. 10·04 millions respectively. There is still a long way ahead of us to reach the 1953 peak figure.

During the years 1957–1960, the average value of export to markets other than U.S.A. was of the order of Rs. 516 lakhs. Compared with this, there has been an improvement in 1961–62 and 1962–63 as shown above, though the exports in 1962–63 are lower than in 1961–62.

The above figures show :—

(1) That West Africa is no longer dependant solely on us for our Real Madras handkerchiefs ;

(2) That re-caputre of traditional markets requires great efforts ; and

(3) That there is a real need to explore new markets.

Sri T. S. Narayanswamy (extreme left) was sworn in recently as Sheriff of Madras.

It is a truism that a product can be sold in a foreign market if it is cheaper or of a better quality or exclusive. Of these, quality is the most essential factor. The All-India Handloom Fabric Marketing Co-operative Society, Limited, which has opened sales emporia at Aden, Bankok, Colombo, Kaulalumpur and Singapore is handling only 5 per cent of the exports. The whole export trade is therefore practically in the hands of private trade. The complaints against us are :

(a) Our price is much higher than similar goods in the market.

(b) That there is no guarantee regarding the quality of materials, measurements of fabrics, fastness of colour or of the time delivery of the goods.

(c) Supplies do not conform to samples. If goods conform to standard specifications and are not similar to indigenous handloom production, there will be no difficulty to expand our export trade. The Indian Standards Institution has prescribed Standard specifications for handloom clothes. Under the I.S.I. certification Act of 1952, manufacturers of handloom cloth can get their goods certified. Proposals to enact a law for pre-shipment inspection are under consideration. When the Act is put on the statute book and is extended to handloom cloth, exporters cannot ship their goods before pre-inspection.

Quality Control Essential

Such pre-inspection is not, however, a novel feature for handloom goods. Even now pre-inspection is insisted upon for Bleeding Madras. During the Second World War, there was a complaint from the Ceylon Government that exporters of handloom cloth were sending inferior goods at high rates. With the concurrence of the Government of India, the Madras Government made arrangements to pre-inspect and stamp the goods before export to Ceylon. The varieties, specifications and price of cloth that can be sent to Ceylon were specified under a Control Order and stamping inspectors were appointed at Madras, Nagapatnam, and other important handloom centres for pre-inspection and stamping. Unless the goods were stamped and accompanied by a certificate from the Textile Control Department that they have been pre-inspected and confirm to specifications they were not accepted for shipment by the Customs authorities. The scheme worked well. The exporters should therefore welcome pre-shipment inspection as it would prevent complaints from the consuming end regarding the quality.

The Handloom Industry and Trade Association with its Statewide membership can be an effective organisation to promote export trade within and outside India. It can undertake a scheme of quality control and arrange for pre-inspection and stamping before the cloth is sent out of Madras State. If properly worked, the Associations stamp will come to be recognised as a hall-mark of quality in the consuming centres.

(From the Madras State Handloom Industry and Trades Association, Souvenir, 1964.)

Bleeding Madras

The Union Ministry of Commerce has, in a Press Note explained the Government's policy regarding the export of "Bleeding Madras", a handloom fabric. Referring to reports appearing in certain newspapers about difficulties experienced by some exporters of "Bleeding Madras" to U.S.A. and other countries, the Press Note says the Government's policy has been a long-term one and has been in operation for the last few years. The exports of this fabric are under compulsory pre-shipment inspection and quality control ; and in order to avoid speculative fluctuations in prices and to ensure stability to the producers and to the importers, Government have regulated the exports by prescribing floor and ceiling prices for export. This has completely established the export of "Bleeding Madras".

The export of this fabric has been increasing rapidly and from Rs. 1·3 crores in 1959 it is running at the rate of Rs. 4 crores in the current year. The production has been going up by 25 per cent each year and now about 17,000 handlooms are producing this fabric in Madras and Andhra Pradesh.

GEOLOGICAL SURVEY OF INDIA — A PERSPECTIVE

G. N. DUTT
Geological Survey of India.

The Twenty-second International Geological Congress was held last December in New Delhi. This was the largest scientific conference ever held in the country and it was the first conference of the Congress held in an Asian Country in which about 1,500 delegates from 100 nations participated.

The Geological Survey of India is one of the biggest department of its kind in the world. The department was first established in the country ostensibly to explore coal deposits. To-day in the context of the country's development plans its important and functions have increased manifold.

Geological survey in India started early in the 19th Century, but it was only in 1851 the Geological Survey was set up in an organised manner.

The zeal to explore the country geologically had attracted many noted British scientists, but their enthusiasm was considerably dampened when, on account of "unhealthy climate and epidemics" in India, the British companies refused to insure their lives.

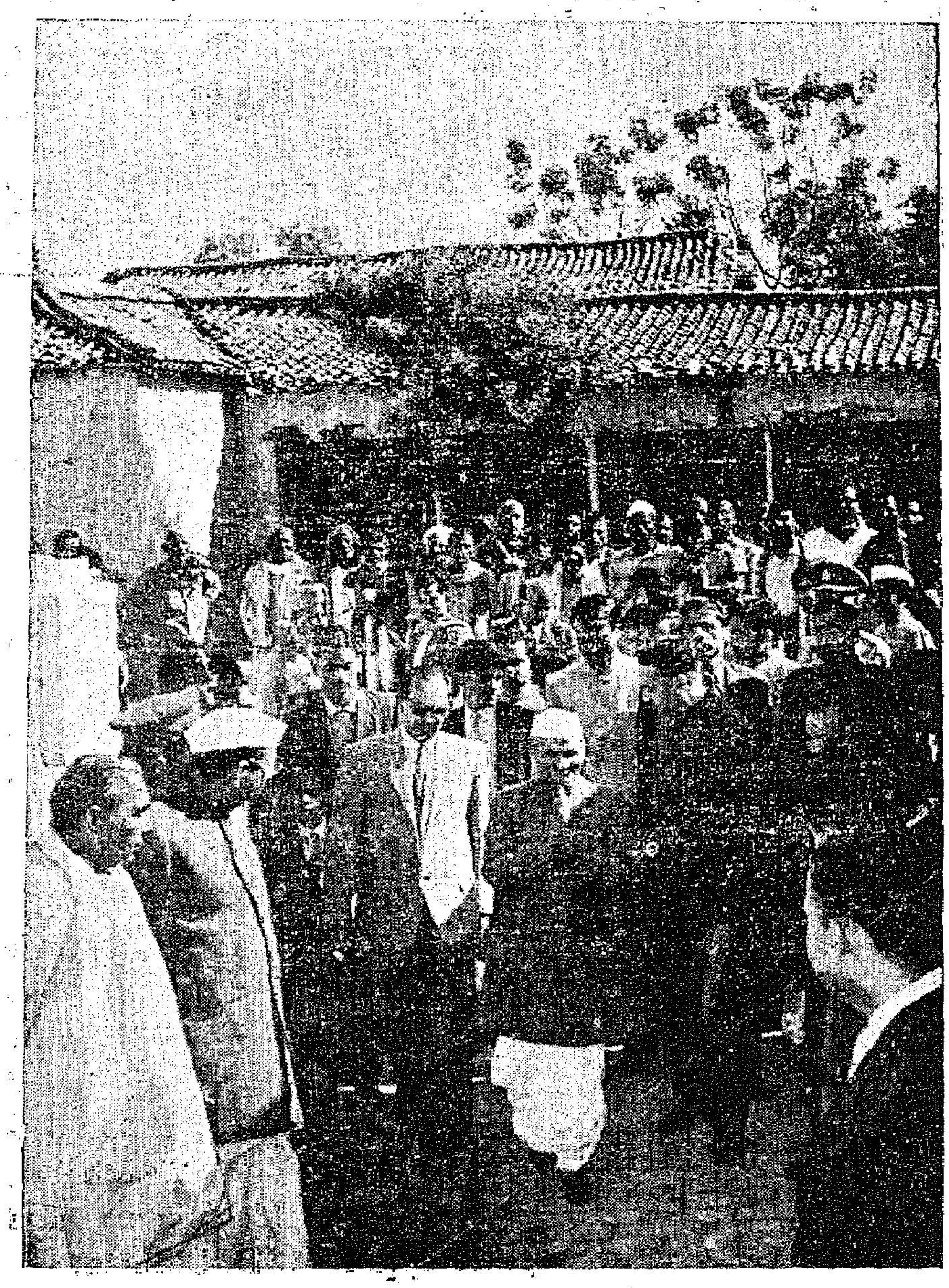
A hazardous work

The hazards of life in India, which the geologists had to face can be judged from the fact that a number of them died not very long after they had joined, of sun-stroke, cholera, dysentery, heart failure, etc., and as a result of being mauled by wild animals.

Besides the hazards, the inconvenience a geologist was put to, can be imagined from the fact that the country had not then developed its railways and the Journey from Calcutta to Punjab by elephant took nearly three months.

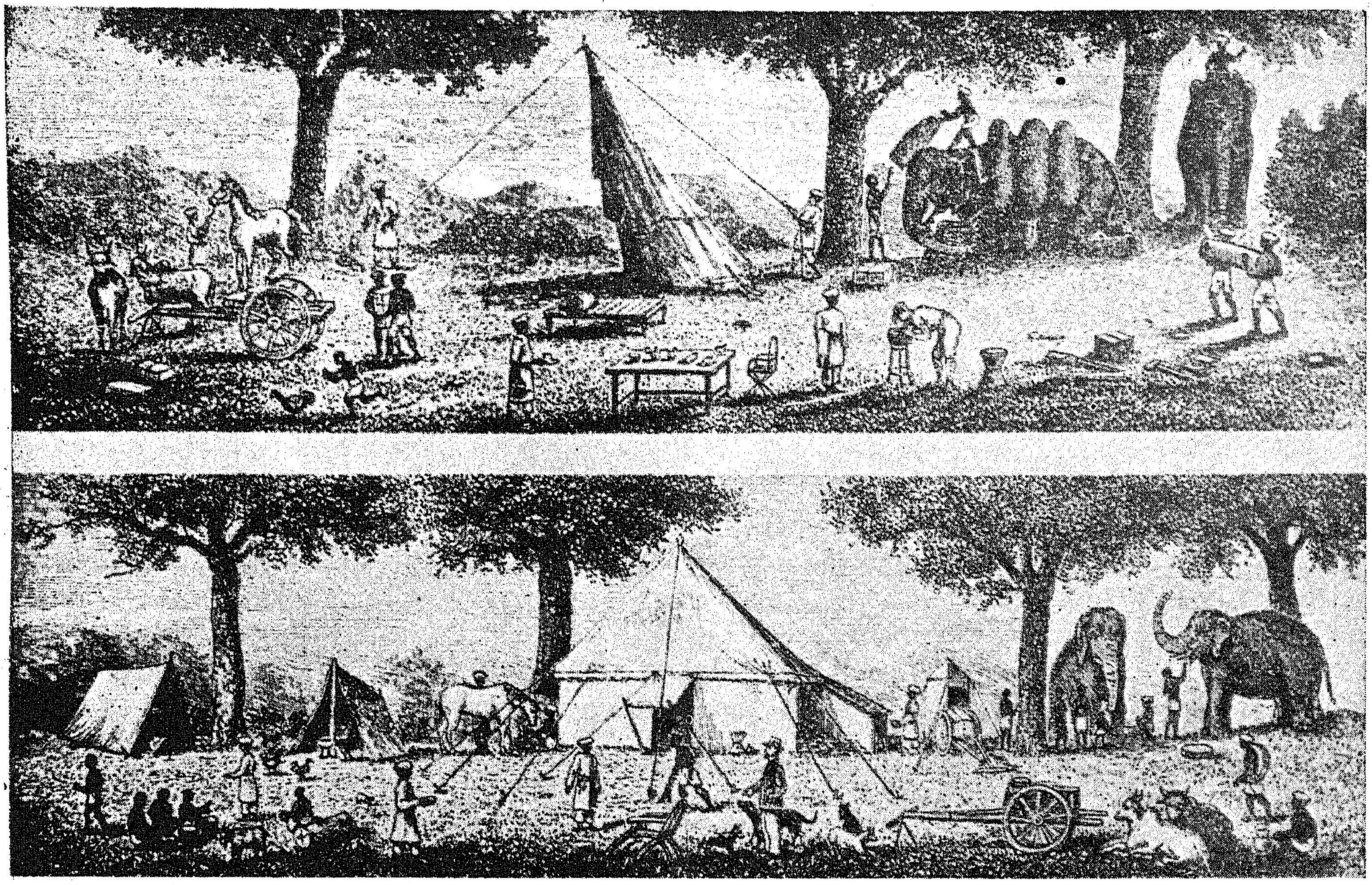
In spite these difficulties, the undaunted pioneers, numbering only a handful, traversed the length and breadth of the country and rendered yeomen service to the Indian Geology. Their pioneering work yet remains to be surpassed by any other country in the world.

These pioneers were also sent beyond the bounds of the country. Burma and Pakistan were then parts of India



The Prime Minister, Shri Lal Bhadur Shastri visited his home town Ram Nagar, on December 27, 1964, for the first time after he took over as Prime Minister. Ram Nagar is near Banaras in U.P.

Photo shows the Prime Minister entering his ancestral house in Ram Nagar where he spent his early life.



A camp of the Geological Survey officers in the middle of the 19th century.

and almost all the basic work for geological survey in these countries has been done by the Geological Survey of India. Their activities spread far and wide and included investigations in Ceylon, the Strait Settlements, Sarawak (now Malaysia), Yarkhand, Kashgarh and Lhasa areas. These also included detailed geological explorations and mineral investigation in Afghanistan, Iran, Middle-East and Arabian States, including Aden. The activities also extended to the Turkistan region and Nepal.

The geologists who came to this country did valuable work in other fields too. For instance, the research work on the composition of the deposits in steam engine boilers by Mr. T. Oldham ; on the Antiquity of Human Race in India by Mr. W. Theobald ; Geological Nomenclature and Cartography by Mr. H. B. Meddlicott, Indian Image Stones by Lt. Gen, McMahon ; and Blowns Sand Rock Sculpture by Dr. R. D. Oldham.

Mr. J. Coggin Brown wrote an extensive memoir on the Anthropology of the Abor Tribes of the North-East Frontier Agency, which has been published as a voluminous memoir of the Asiatic Society of Bengal.

In the field of mountaineering may be mentioned the name of Mr. A. M. Heron, now leading a retired life in

Facts about the Geological Survey of India

* *India has one of the oldest Geological Survey with a record of 114 years of systematic Geological Survey of this sub-continent.*
* *It is the third largest Survey Department in the world.*
* *The Geological Survey of India has a library with two-lakh volumes which is perhaps the biggest of its kind in this continent.*
* *The Department has 1,000 technical experts working in different parts of the country.*

the Nilgiris Hills, who joined the British Everest Expeditions in 1921 and 1924.

Participation in Mountaineering expeditions

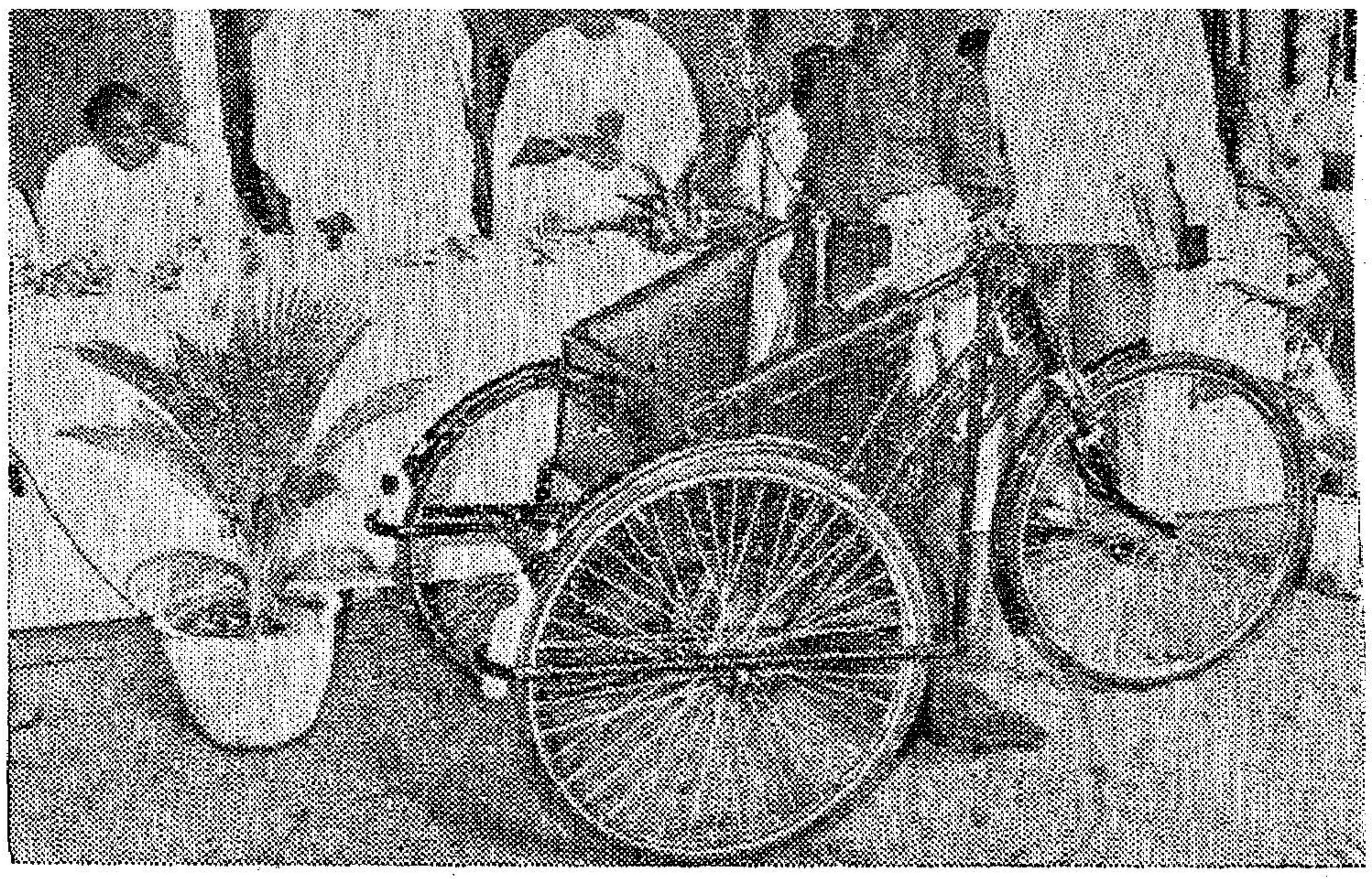
After Independence, participation by the Geological Survey of India in the mountaineering expeditions has become a regular feature. Sri G. N. Dutt accompanied the British Everest Expedition in 1951 and Sri C. P. Vohra went with the Indian Everest Expedition in 1960 and 1962. Sri B. N. Raina joined the Japanese expedition to Mansalu (1956), while Sri V. K. Raina climbed the summit of Saser Kangri in the Karakorum in 1956.

The Geological Survey of India was set up to explore ostensibly the coal deposits of the country. With a handful of officers, the edifice of the survey was built up, and after 113 years of its existence, this has become the third largest Survey Department in the World. It's technical staff now has reached the strength of 1,000 while the total employees number 6,000.

The headquarters of the Geological Survey of India are situated in Calcutta, but it has now offices in every State to attend to the local problems quickly. Besides these, it has also set up three principal or regional offices in the East, North and South.

The work of the Geological Survey of India include systematic geological mapping, mineral assessment and exploration, engineering geology and assessment of groundwater. Its laboratories cater to the examination of rocks and minerals, using, if necessary, X-ray and spectroscopic methods, and determinations of fossils. To facilitate quick analysis, the chemical laboratories carry out quantitative estimation of ores, trace elements and of water by geochemical methods. Analysis of coal and gas are also undertaken.

For the successful exploration of minerals and water and to assist in engineering geology and groundwater



Ex-No. 6558446 Sri Uthiravel of South Arcot District who lost both legs in the recent Chinese aggression was awarded a hand propelled tricycle by the Citizens' Central Council, New Delhi on the recommendation of the District Soldiers', Sailors' and Airmen's Board, South Arcot at Cuddalore N.T. The tricycle was presented to the disabled ex-serviceman by the Chief Minister Sri M. Bhaktavatsalam.

problems, a very large number of geophysicists are employed here. Some of the instruments, including the electronic equipments, are fabricated here.

Important Units

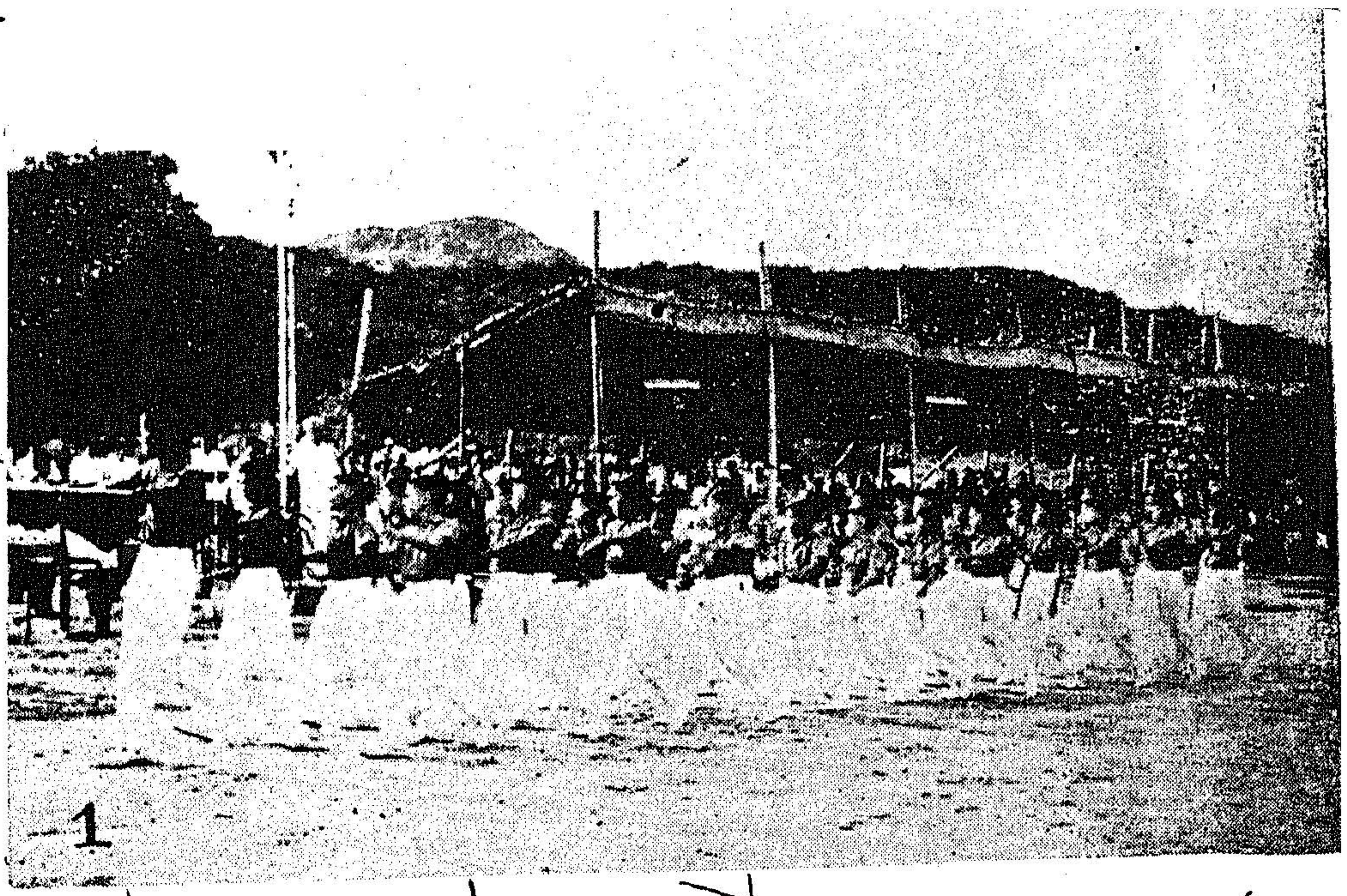
Coal exploration and drilling form important units in this department. There are separate divisions for Production of maps, diagrams, photographs and for publications. This department has currently in its lists some 300 institutions abroad with whom it exchanges its publications. Its library, consisting of over 200,000 volumes is perhaps the biggest of its kind in this continent. This is equipped with modern reprographic equipments for quick and inexpensive copying and microfilming.

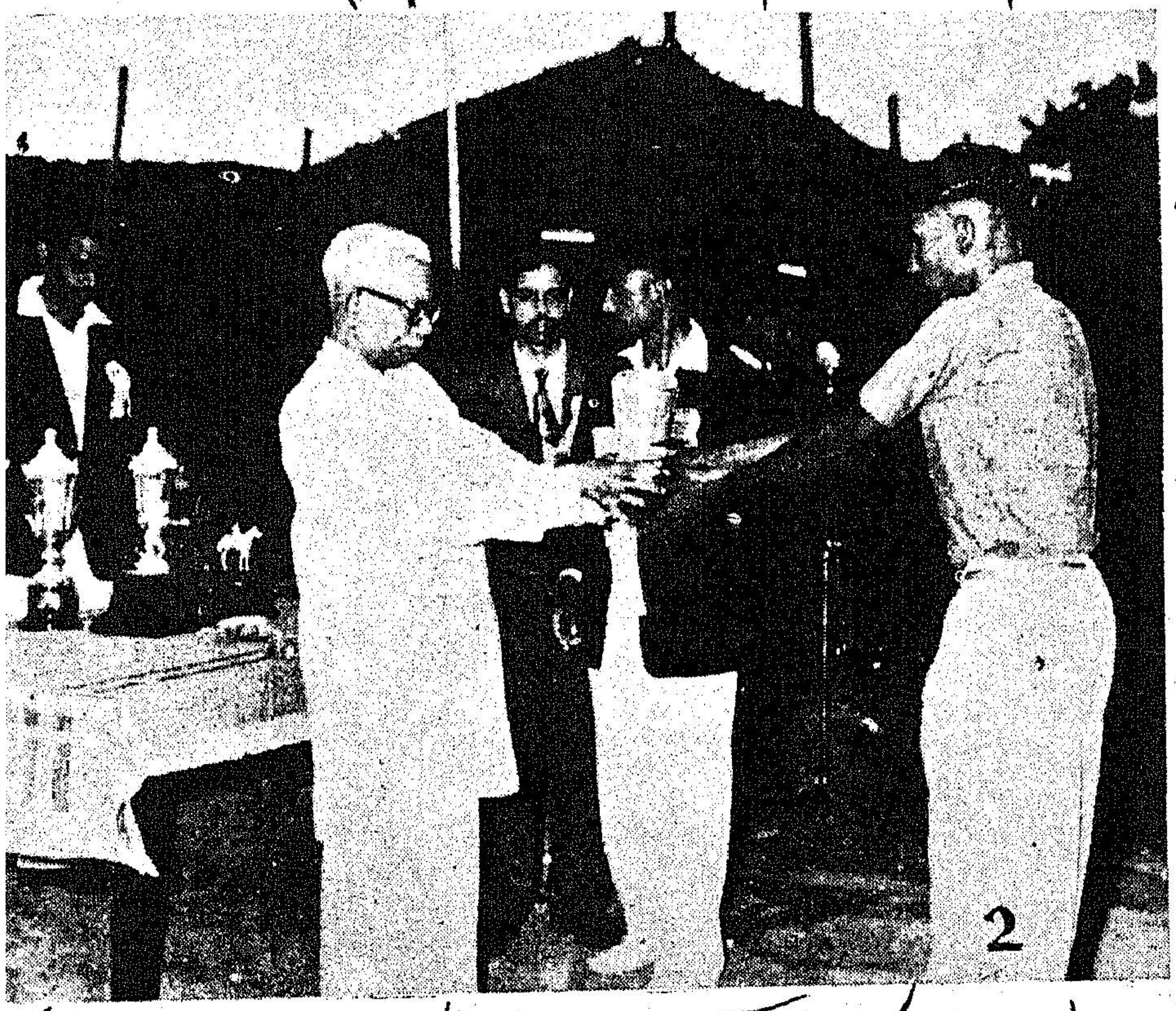
For some time past, the department has been imparting geological knowledge to the lay-men through pamphlets which have been brought out in English and in regional language. The Geologists also deliver lectures with the help of lantern slides in far away towns and villages.

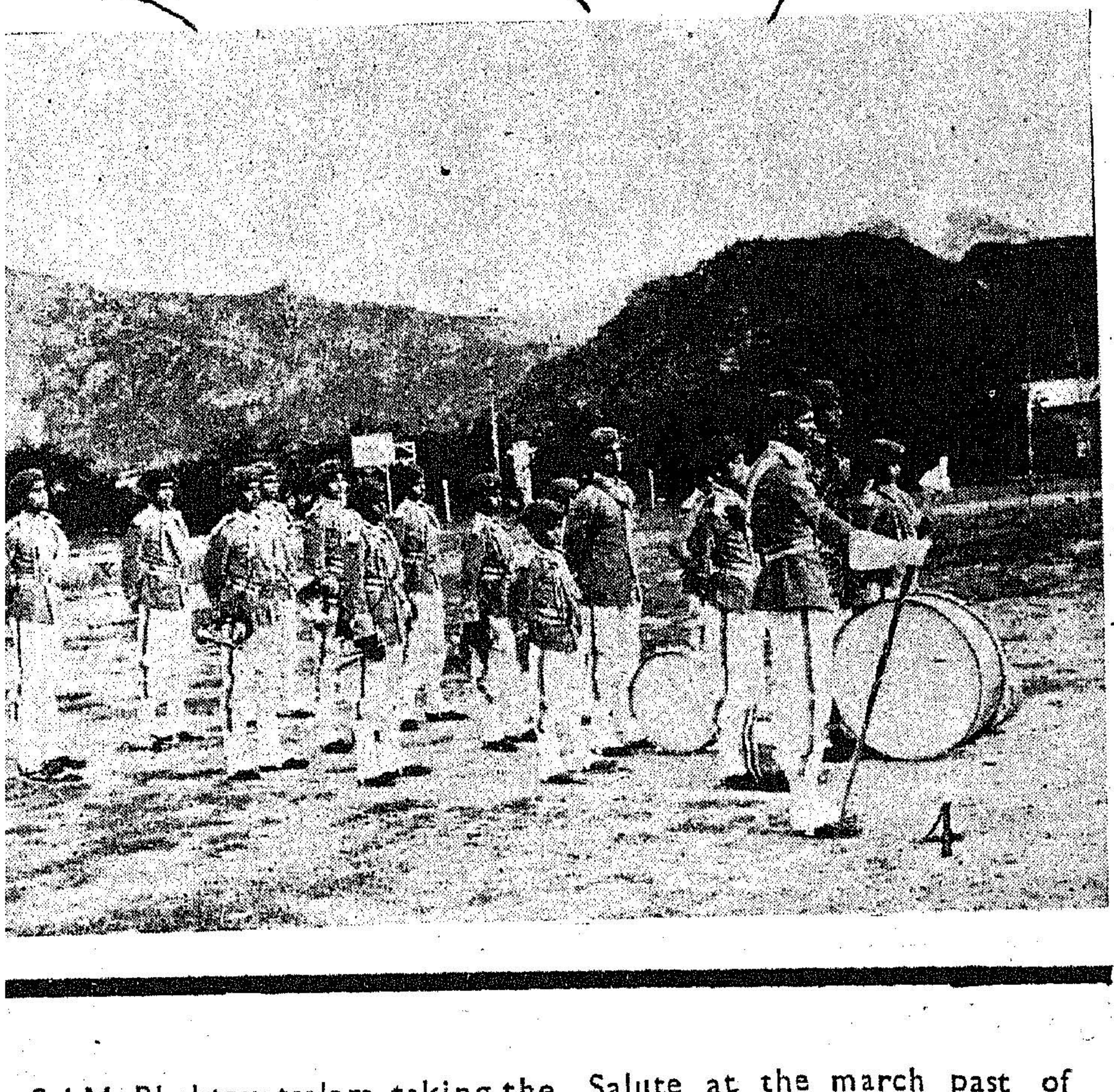
Madras Plant Extension IV Stage

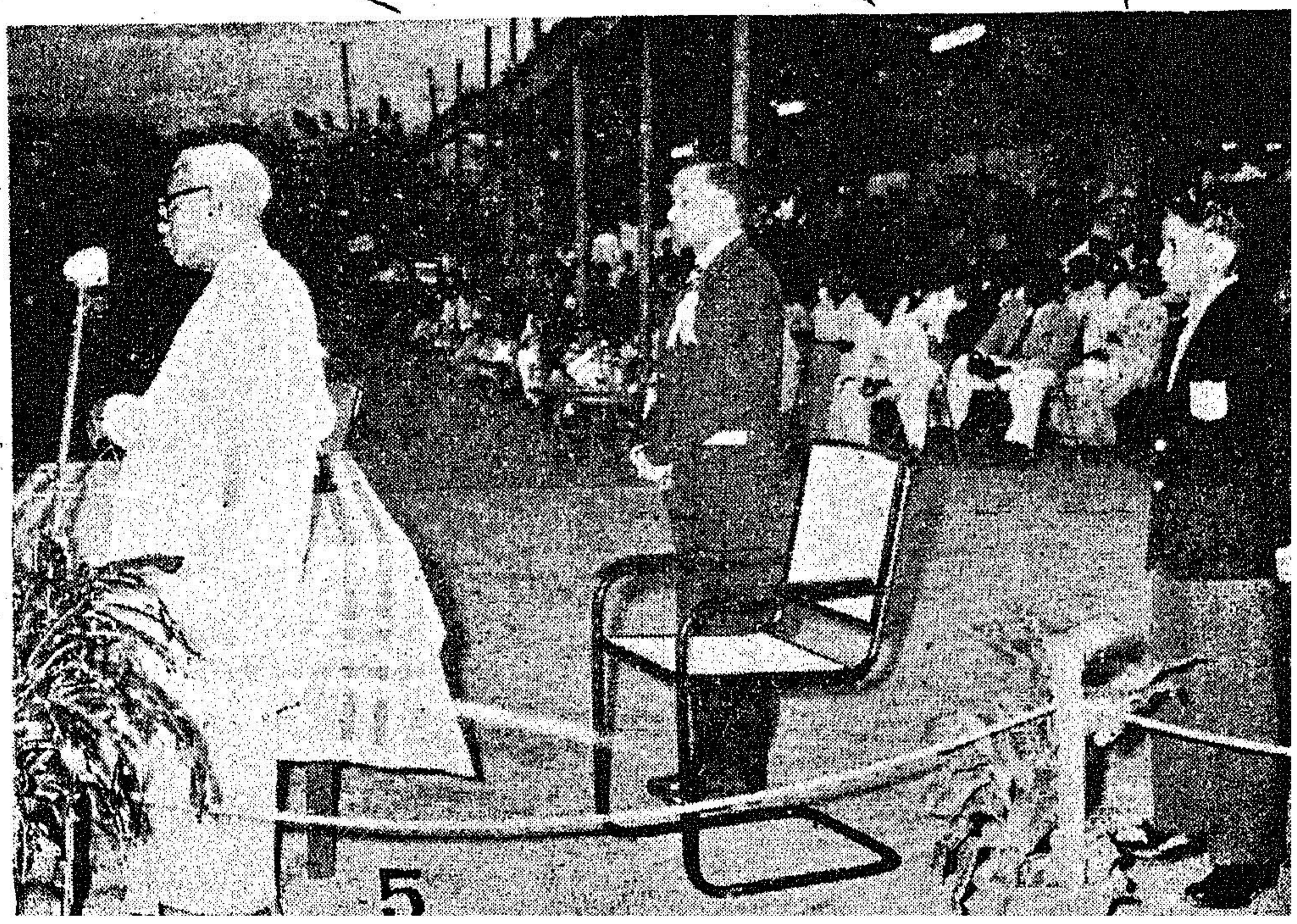
The erection of an additional 150,000 lb./hr. boiler for the Madras Power Station to augment the station capacity was under progress. This has been supplied by Yugoslavia under rupee payment. About 94·75 per cent of work in erection of boiler was completed.

AINIK SCHOOL ACTIVITIES









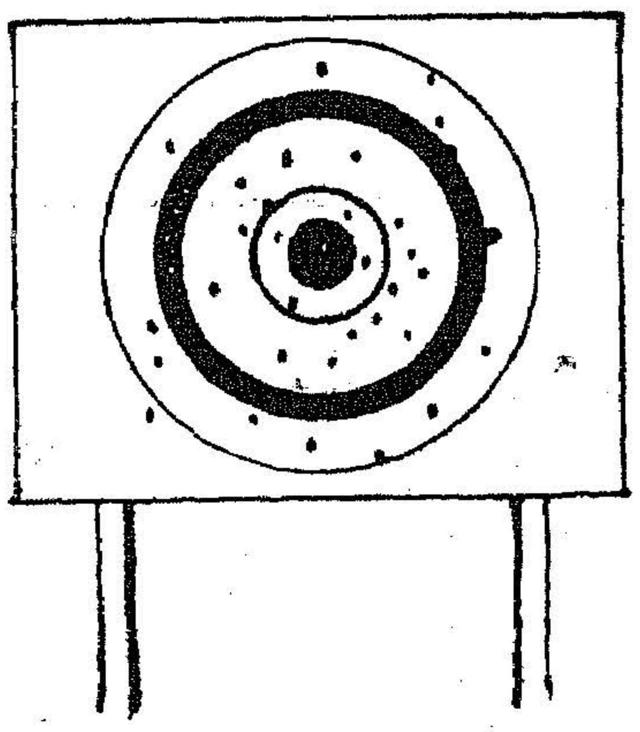
. Sri M. Bhaktavatsalam taking the Salute at the march past of the athletes on the School Day.

.. The Chief Minister is presenting to Sri Bhaskaran the General Choudhury's Trophy for Inter-House Athletics Championship.

. Lt. Col. K. R. Venkatraman, Principal, presenting the School Report at the School Day Celebrations.

ł. The School Band in attendance on the School Day.

;. The Chief Minister is addressing the gathering on the School Day.



Education AT THE SAINIK SCHOOL

The future of India is dear to all of us. Our cherished ambition is to see that the work of such men as Gandhiji and Nehruji, who gave their lives so that this nation might live, is continued. It is our sacred duty to train the youth to assume leadership of the nation in the years to come to carry on the great tasks remaining before us. One aim of the Sainik Schools is to provide such leaders from children of merit from all sections of the people.

The Sainik School (Madras State) is located at Amaravathinagar, about 60 miles south east of Coimbatore. The staff and students of the school at this picturesque little place at the foot of the Anamalai Hills are all working hard with a sense of duty. The very basic object of the school is to infuse among the young generation of the country a confidence, an indomitable spirit—to strive to achieve and not to yield—true to its motto " Can Do It ". The magestic Amaravathi Dam with a beautiful park and the green hills around the place lend added charm to the place. This school is one of the 15 Schools established in the country to provide public school education with a military bias. There are two Sainik Schools in Punjab and one in each of the following States : Rajasthan, Gujarat, Maharashtra, Andhrapradesh, Orissa, West Bengal, Kerala, Madhyapredesh, Mysore and Bihar. The Sainik School of this State in common with the other Sainik Schools, has an all India curriculum, system of selection and examination.

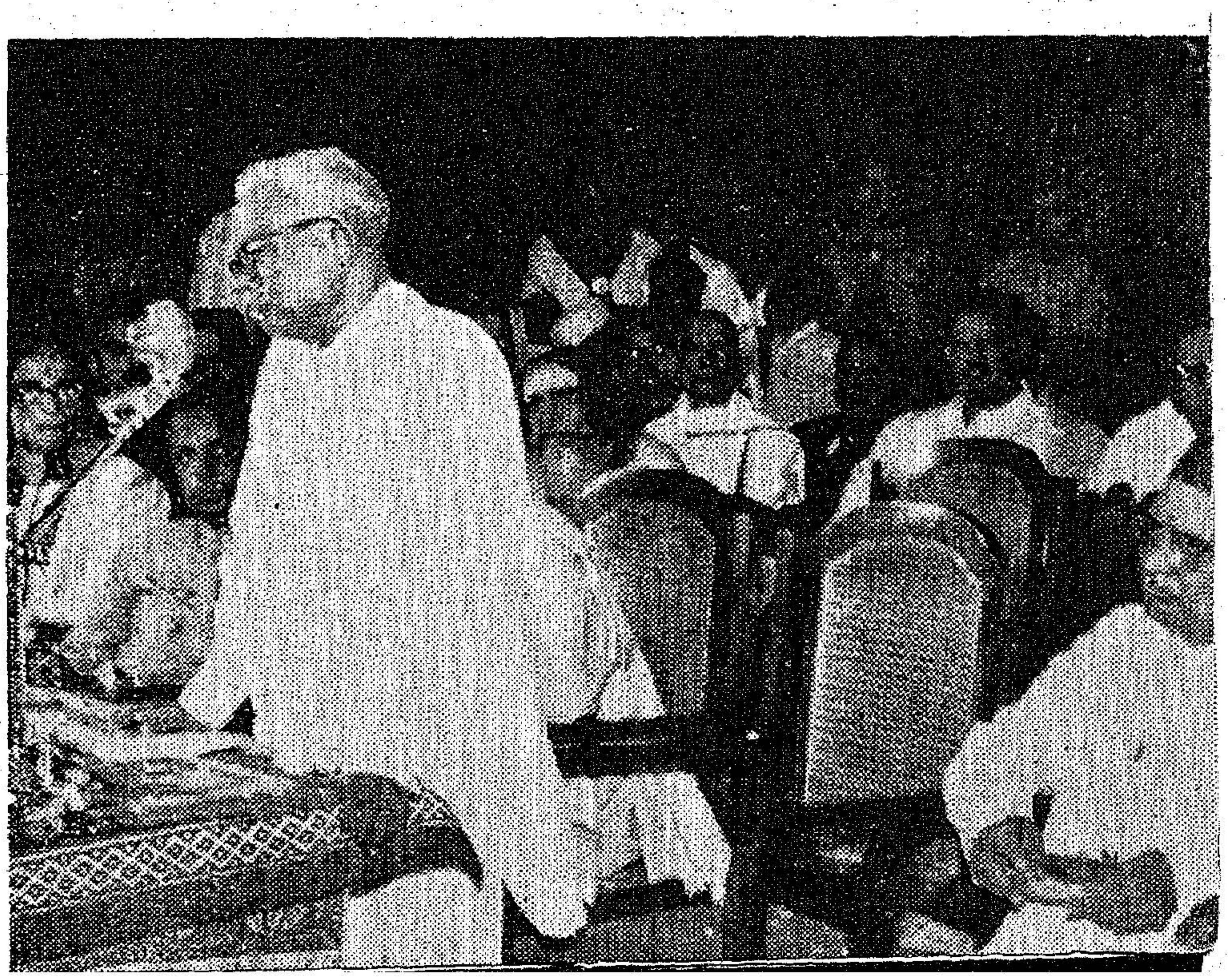
The Aim

These schools are mainly intended to be feeder institutions to prepare boys academically, physically and psychologically for entry into the National Defence Academy where India's youths are trained for officer cadre of the Army/Navy/Air force. Character, team spirit, dedication to purpose, a patriotic outlook and a desire to serve the country with zeal and efficiency are the qualities sought to be promoted by the training at these schools.

The administration of Sainik Schools is vested in an autonomous Board of Governors under the Chairmanship of the Union Minister of Defence. The Chief Ministers or the Education Ministers of the States in which the schools are established are also members of the Board of Governors.

The Principal, Headmaster and Registrar are Defence Service Officers. In addition, there is the teaching staff consisting of highly qualified team of well paid Masters/Teachers at the head of whom is the Headmaster. The teaching staff work under the direct and active supervision of the Principal.

Sri Balakrishna Joshi, Headmaster, the Hindu Theological High School was felicitated at a special function in recognition of his 35 years of service. Chief Minister participated in the function.



At present the Sainik School at Amaravathi caters for 300 boys and has standards V to XI. It will eventually have places for 525 students divided into 21 sections of 25 boys each. Admission is open to boys between the age group 9—13 in classes V to VIII according to the age groups mentioned below :—

Age on 2nd January 2nd July depending on term in which admitted.	Standard to which eligible for admission.
(1)	(2)
Below 10 years	V
Below 11 years	VI
Below 12 years	VII
Below 13 years	VIII

Sixty Seven per cent of the seats in the School are reserved for boys belonging to the Madras State. A certain number of seats are reserved for sons of serving or ex-service personnel. Boys from outside the State will also be admitted.

The School fees are as follows :—

(*a*) School fees .. Rs. 1,900 per annum payable in advance in January or Rs. 200 per month for ten months in a year.

(*b*) Outfit charges. Rs. 300 for clothing and equipment in the first year and Rs. 150 in subsequent years.

Liberal scholarship schemes based on merit and income have been provided both by the State Governments and Central Government.

Subjects taught

The medium of instruction in this School is English with Hindi as a compulsory subject. Other major subjects taught are English Language, English Literature, Mathematics, Physics, Chemistry, General Science and Social Studies. The option for the third language has been restricted to Tamil/Sanskrit at this school. Tutorial classes for the students weak in English, Mathematics and Hindi and special coaching classes for the Defence Academy entrance examination is provided in the school.

The academic year consists of two terms—the first from January to May and the second from July to December. There are two mid-term breaks which normally coincide with popular festivals in the months of March and October when the students are taken round places of historical interest and educational value.

SCALES OF RATIONS FOR THE SAINIK SCHOOL

Serial number and articles.	*Scale per day in.*
(1)	(2)
	oz.
1 Atta/Rice/Bread/Flour	13
2 Dhallia (crushed wheat) ..	½
3 Cornflakes (indigenous manufacture only).	½
4 Semolina	½
5 Cornflour/custard powder or other cereals for pudding.	¼
6 Milk standard/fresh/blended ..	18
7 Butter fresh	1
8 Eggs or Cheese tinned	1½
9 Meat fresh (with bone)	5
or	
Fish fresh	8
or	
chicken dressed/fowl dressed.. ..	4
10 Oil Hydrogenated	2
11 Dal	½
12 Potatoes fresh	4
13 Onions fresh	2
or	
Garlic (Lasson)	½
14 Vegetables fresh	6
15 Fruits fresh citrus	4
or	
non-citrus	8
16 Cheese tinned	½
or	
Cream fresh	½
17 Sugar	2
18 Tea	¼
or	
Coffee	3/5
19 Salt rock evaporated	¾
20 Condiments and spices or pickles/chutney/vinegar.	¼
21 Jam/marmalade	½

The school prepares boys for the following Examinations :—

(*a*) Union Public Service Commission Examination for admission to the National Defence Academy.

(*b*) Indian School Certificate Examination conducted by the University of Cambridge Local Examination Syndicate.

NOTE—The Indian School Certificate Examination is now recognised as equivalent to the Pre-University examination by the Madras University also.

Out of 17 boys who appeared for the National Defence Academy Entrance Examination in May 1964, 12 have passed.

A full time librarian is in-charge of the School library and reading room, with Indian and foreign magazines and periodicals. Books covering various subjects are available to the students except from the " Reference Section " which is intended for " on the spot use " only.

Physical training and other activities

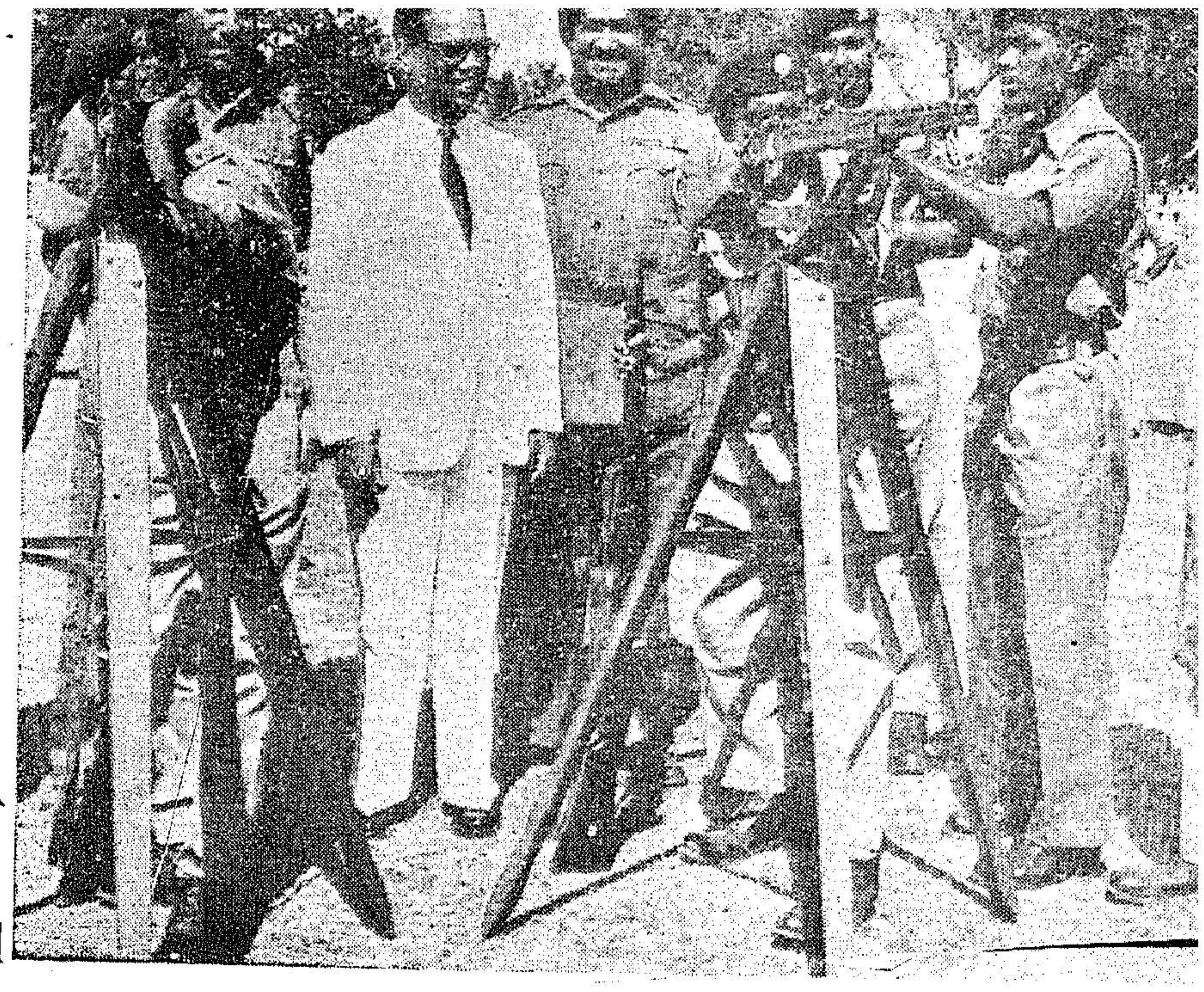
National Cadet Corps training, sports including horse riding and swimming, games, hobbies, fine arts, crafts and cultural activities are compulsory features of the comprehensive training which the boys of the School receive. Co-curricular activities such as angling, debate, drama, excursion-*cum*-ed ucational tour, mountaineering, etc., are also provided. These activities are designed to stimulate the interest of the student's in hobbies and provide opportunities for self-expression thereby ensuring the formation of a balanced and integrated personality. The scheme also provides ample scope for development of student's creative faculties and skill in Fine Arts and Crafts.

Great stress is laid on physical education in the school. This is designed to provide not only healthy recreation but also to ensure proper physical development and the fostering of the qualities of leadership, team spirit and espirit-de-corps.

By special permission of the Government, all students irrespective of age are enrolled into the N.C.C. Junior Division, Army Wing. The syllabus followed, however, is a combined syllabus of the three Services, viz., Army, Navy and Air Force. Training is conducted by N.C.C. Officers assisted by Instructors from N.C.C.

The daily training programme is designed among other things to cultivate good habits in the students, to develop in them the capacity for self-education, to progressively develop their mental and physical capabilities and to provide time for recreation. Based on this, the daily routine consists of P.T., Drill and seven instructional periods in the forenoon, and games and extra-curricular activities in the afternoon and supervised study periods in the evening. Sundays, holidays and the afternoons of Saturdays are utilized for taking students on hikes, educational tours and other outdoor activities.

Boys are accommodated in dormitories grouped into houses. There are five Houses at present, namely, Chera, Chola, Pandya, Pallava and Bharathi. Each House has a House Master and two House Tutors. Matrons look after junior boys and supervise their general health and personal hygiene.



Rifle Training to the N.C.C. Cadets of the Senior Division at a Camp held at Model High School, Saidapet.

There exists a healthy competitive spirit among the Houses to excel in studies, games, athletics and other co-curricular activities. Each House has its own Captain, Vice-Captain and Prefects who help in the maintenance of discipline and cleanliness in the House.

The School has a well equipped dining hall where all the students eat together. The cooking arrangements are supervised by a well qualified Mess Manager. There is a Mess Committee consisting of the School Registrar as Chairman and representatives of the staff and students as members. It meets once a month to suggest menus and discuss other catering matters. Both vegetarian and non-vegetarian meals are provided.

A well equipped canteen with goods from the Canteen Stores Department (India) is run by the School. It is proposed to open a School tuckshop to enable the students to purchase simple snacks and soft drinks.

Medical attention

The School has a part-time Medical Officer and a full time qualified Nursing Assistant. The Medical Officer, visits the School daily and a high standard of hygiene sanitation is maintained throughout the School Estate.

Each boy is subjected to a medical examination and the Medical Officer's report is forwarded to parents for necessary action, if any. A Medical History Sheet is maintained in respect of each student.

The School colours are steel (grey) and blood (red). Steel stands for strength and blood for extreme devotion to duty and comradeship. In the School Crest, the sword represents valour and the lamp stands for knowledge and wisdom. The Gopuram symbolises the culture and genius of the Madras State. The School Motto is " CAN DO IT " signifying and indomitable spirit determined to strive, to achieve and not to yield.

Scholarships to Students

The Madras Government have instituted a liberal Scholarship Scheme for the award of scholarships to deserving students of Madras State domicile and to those students belonging to other States whose parents have been employed continuously in the Madras State for a minimum period of three years as on 1st January of the year of admission. The scholarships are awarded on the following basis.—

Joint monthly income of parents. (1)	*Rate of scholarships.* (2)
Up to Rs. 300 p.m. ..	Rs. 1,900 per annum plus Rs. 300 clothing and equipment allowance in the first year and Rs. 150 in subsequent years.
Up to Rs. 500 p.m. ..	Rs. 1,425 per annum plus Rs. 300 equipment allowance in the first year and Rs. 150 in subsequent years.
Up to Rs. 700 p.m. ..	Rs. 950 per annum.
Up to Rs. 1,000 p.m.	Rs. 475 per annum.

Students of Madras domicile or those whose parents have been employed continuously in the Madras State referred to above, who obtain the first rank in their respective standards in the All-India Entrance Examination for admission to the Sainik School (Madras State) will be awarded full fee scholarship as an incentive irrespective of the income of the parents. In addition, clothing allowances based on income group of the parents will also be allowed.

The State Government Scholarship will be granted on production of adequate proof of domicile of Madras State (or employment in case of those belonging to other States) in respect of father legal guardian of the student and on declaration of the combined monthly income of the parents/guardians on a non-judicial stamp paper.

The scholarships will be available to students from standards V to XI. The total number of scholarships to be awarded will be limited to 62 per cent of the total strength of students on rolls of the Sainik School at Amaravathinagar. This maximum limit will be inclusive of the scholarships awarded to students of Madras State studying in Sainik School of other States, and also those awarded scholarships on the basis of merit.

The sanctioning authority for these scholarships will be the Government of Madras.

Applications for scholarships should be made to the Principal, Sainik School (Madras State) by the candidates concerned in the prescribed form obtainable from the said Principal, immediately after the selection for admission to the School, i.e., within a week from the date of announcement of results.

Ministry of Defence Scholarships

These scholarships will be granted by the Central Government only to sons of serving ex-service Junior Commissioned Officers and other Ranks of the Army and equivalent ranks of the other two services, to fill up a fixed quota based on the results of the entrance examination. The rates of scholarships are as follows :—

Income group. (1)	*Amount of scholarship.* (2)
(*a*) Rs. 1,200 p.m. or over.	No scholarship.
(*b*) Rs. 600 p.m. to Rs. 1,199 p.m.	Exemption from half school fees.
(*c*) Rs. 251 to Rs. 599 p.m.	Full exemption from school fees.
(*d*) Rs. 101 to Rs. 250 p.m.	Full exemption from school fees. The holder will also be given a clothing allowance of Rs. 300 in the first year and Rs. 150 in subsequent years.
(*e*) Rs. 75 to Rs. 100 p.m.	Full exemption from school fees and clothing allowance as at (*d*) above. Travelling allowance will also be admissible according to existing rules.
(*f*) Less than Rs. 75 p.m.	As in (*e*) above plus pocket money for essential toilet requisities.

Scholarships will be granted for one year in the first instance and renewed every year subject to the student's good conduct and satisfactory progress.

The Central Government have also instituted a separate liberal scholarship scheme for boys belonging to the Union territories/Centrally administered areas. The rates of the scholarships are similar to those for the Ministry of Defence scholarships.

Road Development in Madras - State

The proper development of the infra-structure of the economy is the precursor of industrial development. If to-day Madras is among the leading States in industrial development it is not a little due to the degree of road development in the State.

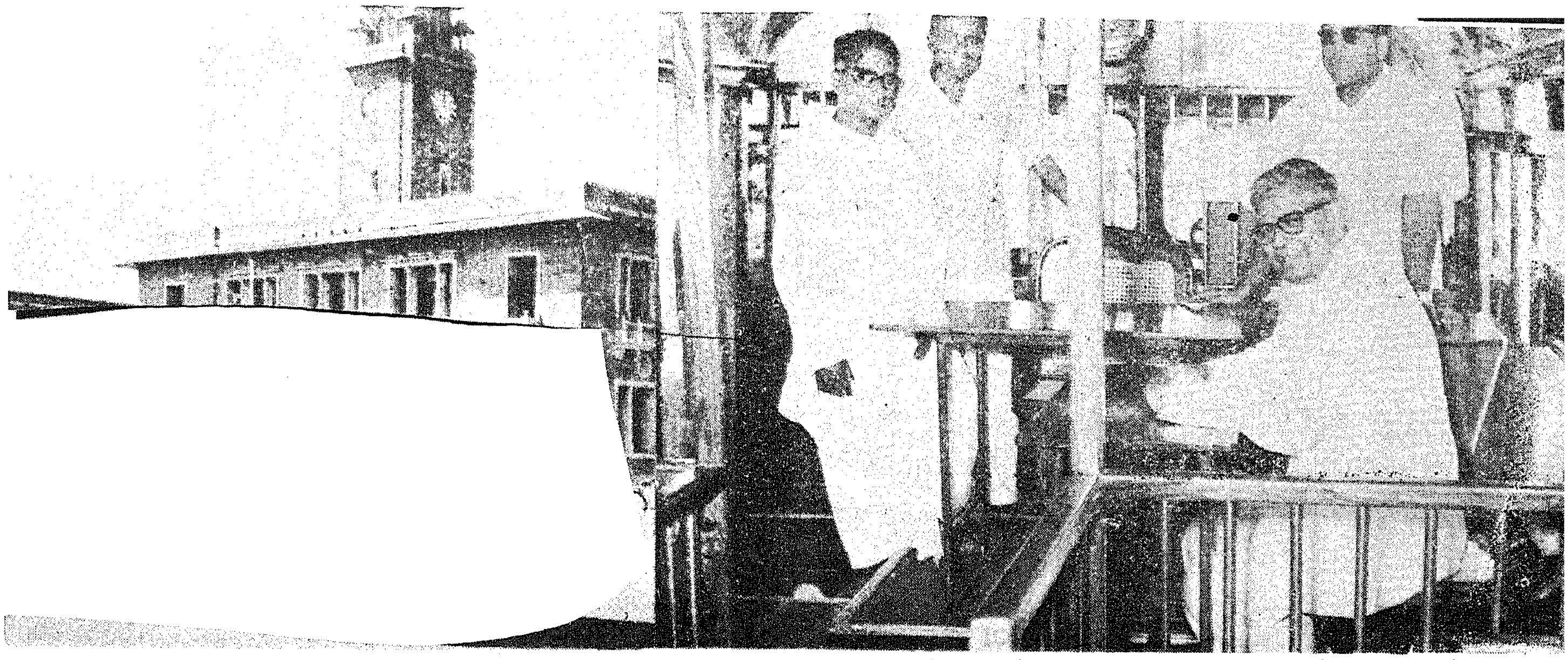
The State now has roads to a total mileage of 26,682 *of which* 18,000 *miles are fit for modern buses and a large proportion is fit for goods transport. The intensity of road mileage of the State has increased from* 0.48 *mile per* 100 *square miles at the end of the First Plan to* 0·50 *at the end of the Second Plan as against the All India average of* 0·26. *This State is spending nearly Rs.* 3 *crores per annum for maintaining the roads in good condition.*

The history of Madras reveals that road building was given importance during the period of Cholas, Pandiyas and later by the Naiks. Significant progress has been made during the region of Rani Mangamma. The benign Rani built roads, planted shady trees and also constructed many rest-houses. Most of the important roads today date back to the Mangamma era. They were called *Rajabattas*. Though a net work of roads was not there, due attention was, however, bestowed in that century itself to the laying of new roads.

Before 1947

During the British rule there was no appreciable progress in road-building. In pursuance of the recommendations of the Nagpur Plan of 1943, a post war Road Development Plan was prepared for M adras State at a cost of Rs. 6·32 crores and it was launched on 1st April 1947. With advent of the First Five-Year Plan this scheme was merged with the Plan. In 1947 there were only 11,420 miles of motarable road in the State. The following comparative figures of different roads will give an idea of the development that has taken place since 1947.

Smt Jothi Vencatachallum, Minister for Public Health, is distributing prizes to nurses and nurse-pupils.



Sri R. Venkataraman, Industries Minister is visiting the "Mobile Court".

MILEAGE OF ROADS AS PER CLASSIFICATIONS

Classification of Roads	At the beginning of First Plan as on 1st April 1951	At the beginning of Second Plan as on 1st April 1956	At the beginning of Third Plan as on 1st April 1961	At the end of 1st and 2nd years of Third Plan (i.e. as on 1st April 1963)
	MILES	MILES	MILES	MILES
1 National Highways	1,059	1,085	1,090	1,090
2 State Highways	1,089	1,089	1,092	1,092
3 Major District Road	8,191	8,340	8,648	8,648
4 Other District Roads and Village Roads ..	10,864	13,531	15,037	15,852
Total ..	21,203	24,045	25,867	26,682

MILEAGE OF ROADS BY TYPE OF SURFACE

Category (type of surface)	At the beginning of First Plan as on 1st April 1951	At the beginning of Second Plan as on 1st April 1956	At the beginning of Third Plan as on 1st April 1961	At the end of 1st and 2nd years of Third Plan (i.e. as on 1st April 1963)
	MILES	MILES	MILES	MILES
1 Cement Concrete Roads	188	276	319	330
2 Blacktopped roads	926	4,616	7,175	7,269
3 Metalled roads	12,953	10,818	11,140	11,297
4 Unmettaled roads	7,137	8,335	7,233	7,786
Total ..	21,198	24,045	25,867	26,682

The net sown area in Madras State is 14,817,736 and not 14,817 as given under "facts about Madras" in the January issue of Madras Information.

The salient achievement during the First Plan period is that the entire stretch if the national highway in the State was blacktopped. The Second Plan was framed with a view to increase the road mileage, so that the needs of rapidly developing transport may be fully met. The target proposed upto 1960–61 was an increase of 7 per cent, in national highway and 17 per cent in surface improvement compared to the figures of 1955–56.

Third Five-Year Plan

The outlay fixed for Third Five-Year Plan of this State is Rs. 11 crores out of which an amount of Rs. 2 crores has been set apart for the formation of link roads under Village Works Grant Programme of Panchayat Unions. The remaining Rs. 9 crores will get distributed among the following seven schemes brought under the purview of the State Plan.

Scheme	*Amount* (RUPEES IN LAKHS)
1 State Highways (Government Roads) ..	400
2 Other roads (Ex-District Boards roads Now Panchayat Union roads and Panchayat roads).	160
3 Security Measure Road Works (in Ramanathapuram district).	50
4 Central Road Fund Scheme (Allocations).	125
5 Economic and Inter-State Importance Scheme (State share of expenditure).	30
6 Construction of over/under bridges in lieu of level crossings.	75
7 Tools and Plant	60
Total ..	900

The Approach

The main objective of the Road Plan of the State is to develop roads where the need is the greatest. The Salem-Neyveli belt where a number of new industries are likely to spring up, the hinterland of the new Tuticorin harbour, the industrial complex developing in and around Madras and the Mettur-Coimbatore industrial belt will receive special attention since the traffic in these areas is likely to increase much more than elsewhere during the coming years. The roads in these areas have to be improved, bridges strengthened where necessary and in general the load-carrying capacity increased.

The roads programme of the State is to ensure, within a period of twenty years, that no village should remain more than four miles away from the metalled road and 1½ miles from a village road.

The State Government has stressed that the following roads be taken-up-under the National Highways Programme :—

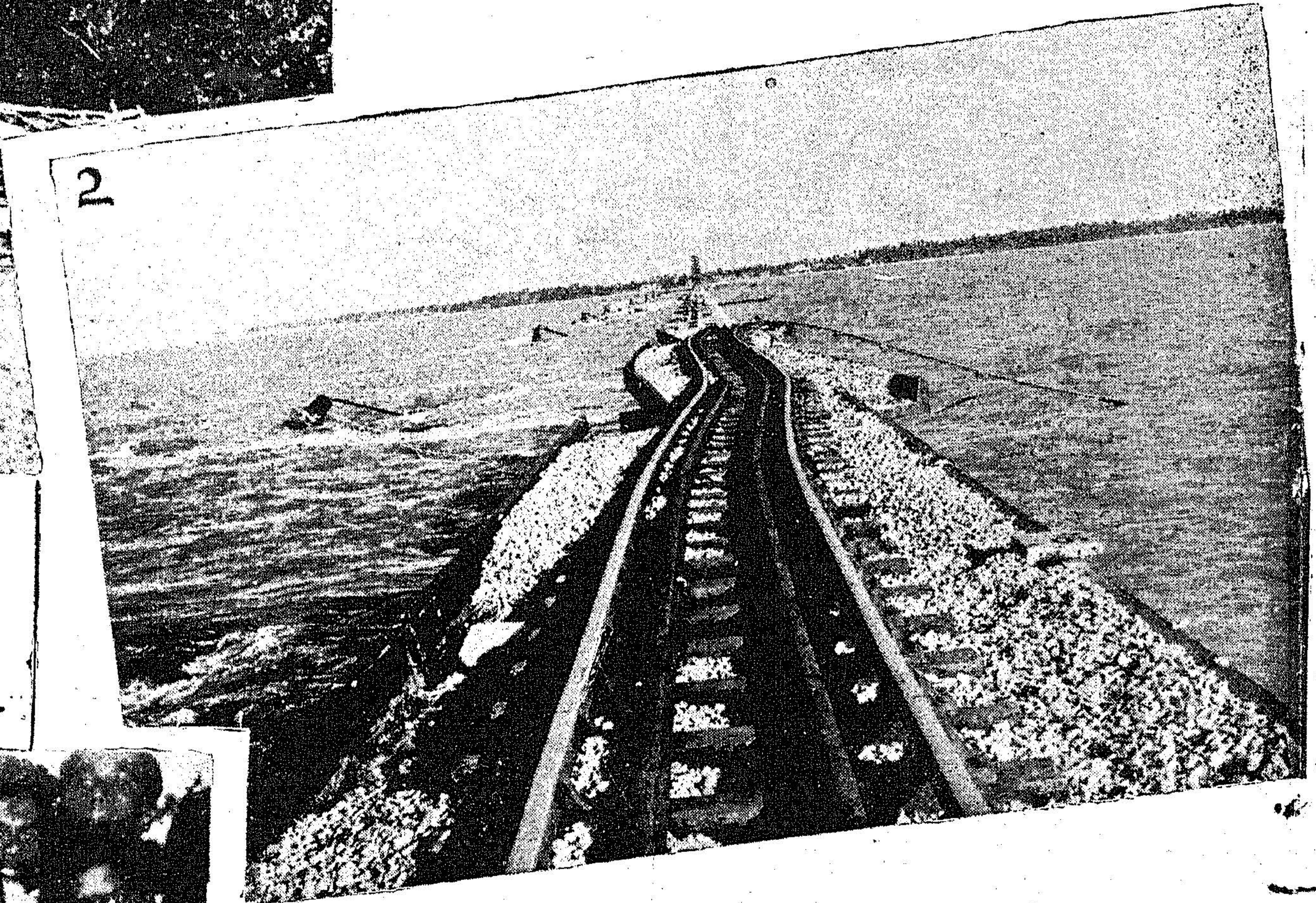
Scheme	*Remarks*
(*a*) Salem-Cuddalore (via) Vriddhachalam.	In view of the expansion of Neyveli Project.
(*b*) Tuticorin-Koilpatti ..	In view of the development of Tuticorin harbour.
(*c*) Bangalore-Madras Express Way.	....
(*d*) East Coast Road ..	....

The permissible laden weight of 9 tons for vehicles has been raised to 12 tons now, so as to facilitiate quick movement of materials and finished products. Weak bridges and culverts on Government roads (Non-National Highways) costing Rs. 38 lakhs have been taken up for reconstruction so as to avoid load restrictions. As only a provision of Rs. 45 lakhs could be accommodated for this in the Third Plan ceiling, structures on all State Highways and important Major District Roads only are being upgraded now, leaving the rest to Fourth Plan.

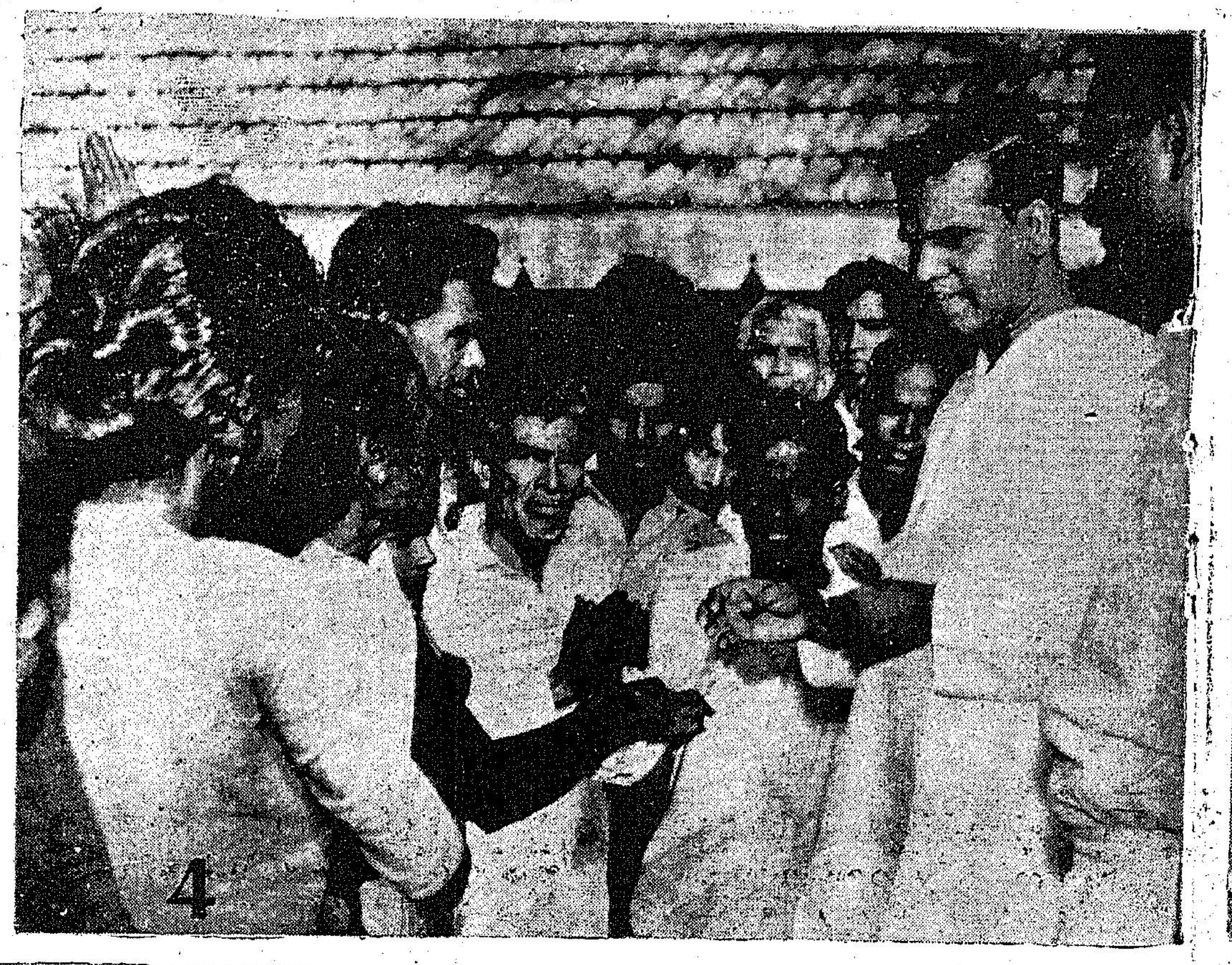
The important cases of bridge redecking and repairs done are :—

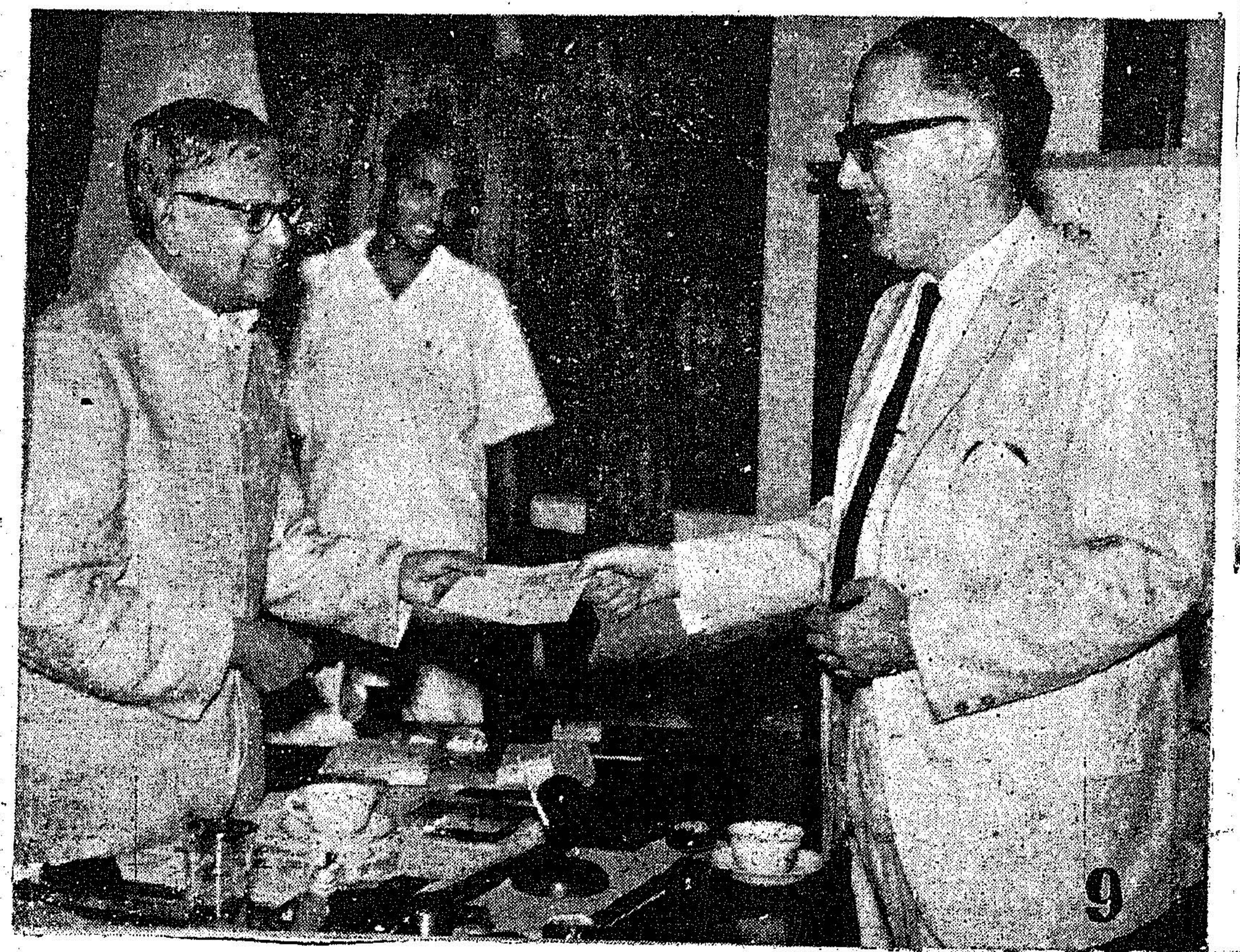
1. Widening of the bridge across Vellar in mile 3/5 of Chidambaram Bhuvanagiri Road (South Arcot district); and

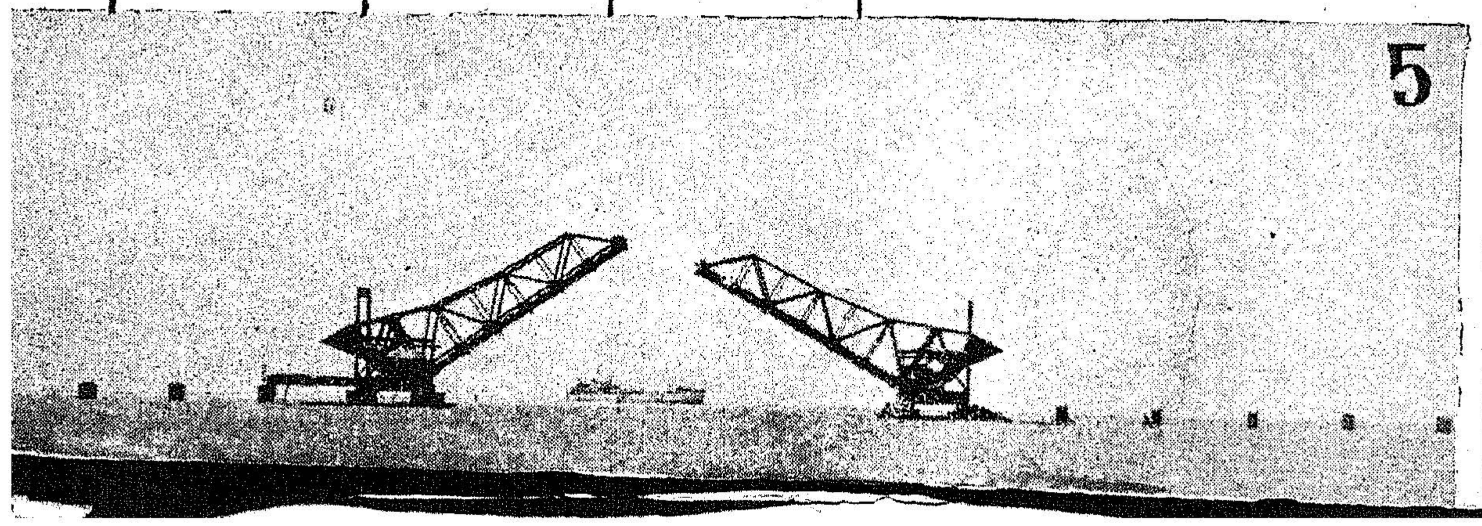
Mrs. Kamalabai Lokanathan, Vice-President of Madras Social and Cultural Academy, is seen handing over to Sri G. Bhuvarahan, Minister for Information, a sum of Rs. 1,001 and sarees as donation to the Cyclone Relief Fund on behalf of the Academy.



The Cyclone and After







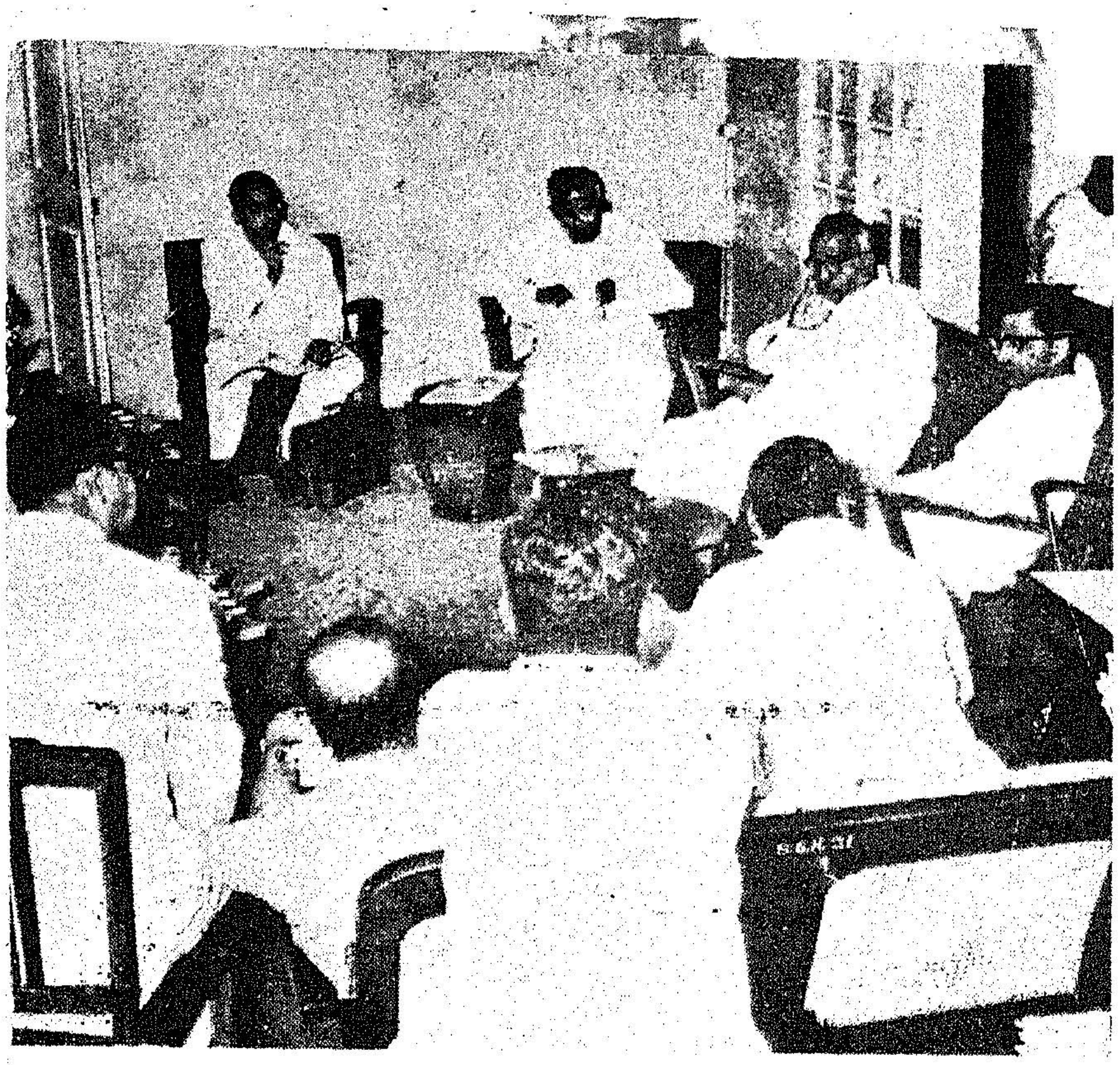
1. The debris of a house after the cyclone.

2 & 5. Badly damaged Rail Track at Dhanushkodi and the remains of the Bamban Bridge which was washed away by the cyclone.

3, 4 & 6. The Chief Minister, Sri G. Bhuvarahan & Sri V. Ramaiah visited the cyclone-affected areas. They are seen talking with the evacuees.

7. Sri T. T. Krishnamachari, Union Finance Minister who visited the cyclone-affected area is seen talking with the Madras Ministers and officials over the relief work.

8 & 9. Mr. Joseph Slifka of New York, U.S.A. and Dr. Edgar H. Reichel, Consul-General of the Federal Republic of Germany are handing over cheques to the Industries Minister for Rs. 2,110 and Rs. 18,000



Sri C. Subramaniam, Union Food Minister, discussing the food situation with the Ministers and officials of Madras State.

2. Strengthening of the old arch bridge in mile 168/4-5 of Lower Anicut Thanjavur Road.

In view of the proposed development of Tuticorin as a major port and as the State's Third Five-Year Plan for roads does not permit execution of further major schemes, the State Government have sanctioned the following works as non-plan works under separate allotment and all the works have been taken up and are in good progress—

Scheme—	(RUPEES IN LAKHS)
1 Forming a road (for 4 lane traffic) from mile 28/1 of Palayamkottai-Tuticorin road to Harbour (outside the Port Limits).	29
2 Forming a service road from mile 4/6 of Tuticorin-Tiruchendur Road to the Harbour (outside the Port Limits).	5
3 Upgrading Tuticorin-Tiruchendur Road mile 1/4-4/6.	4·65

The portions of works coming within the Port Limits at a cost of Rs. 16·50 lakhs are being taken up with full central grant and all the road works both within and outside the Port Limits are being executed by the Highways and Rural Works Department.

Regarding construction of over bridges, the following major works in the Madras City are taken up for construction during Third Plan period—

	(RUPEES IN LAKHS)
1 Construction of an overbridge on Thiruvothiyur High Road.	48
2 Construction of a subway on the Spring-haven Road near the Light House.	45

The First work is being executed by the Corporation and the Second work by the Highways and Rural Works Department. Both the works are expected to be completed during this Plan period. Another scheme of construction of an overbridge in Kodambakkam High Road within the Madras City has also been taken up at a cost of Rs. 39 lakhs with 50 per cent contribution from the State Housing Board. The work is also in good progress.

Under the scheme " Other roads " only the spill over works of Second Plan on Ex-District Board Roads (Now under Panchayat Union and Panchayat) are being carried on to completion. Similarly in the case of Central Road Fund (Allocation) and Economic and Inter-State importance scheme, only the spill over works of Second Plan are carried on to completion as no new works have so far been sanctioned in the Third

IN AND ABOUT CHINGLEPUT DISTRICT

Unique Tourist attractions.—Chingleput district boasts of rare world renowned monolithic Archaeological stone engravings at Mahabalipuram.

The Bird Sanctuary at Vedanthangal in this district is one of the best sancturies of India and is a unique tourist attraction Centre.

Chingleput district is equally unique in the matter of Temples. Conjeevaram, Sriperumbathur and Tiruttani shrines are of great attraction. The " Wonder " of twin eagles appearing punctually everyday at the top of Tirukkalikundram hillock is another pride of the district.

Again the sea-like lagoons at Pulicat and Ennur cannot be seen in other districts.

In Industries also the district is leading. Women vie with each other to put on latest Conjeevaram " cholis " and the world famous Conjeevaram " Sarees ". " Ashok Leyland Automobiles ", " Good Year Tyres ", " T.I. Cycles ", " Ennur Fertilisers ", " Wimco Match Factory ", " Royal Enfield " " Tube Products " are a few of the many industries which throng the district.

The district is having excellent Tuberculosis and Leprosy Sanatoria.

Agriculture.—Though, there is no huge river or reservoir as seen elsewhere, green crops feast the eye of everyone along trunk roads, railways. The Chembarambakkam " Eri " Kaluvoy lake and Madurantagam " Kanmoi " are "miniature seas " irrigating vast acreage of wetland.

Plan. A ghat road for a length of nine miles in Yelagiri Hills in North Arcot District costing Rs. 18 lakhs is in progress under this scheme with a central assistance of Rs. 1 lakh. In the case of security measure works in Ramanathapuram, the provision is for completing incomplete works already sanctioned and these works are all practically completed by the end of 1963–64. No further works are taken up under Security Measure Scheme.

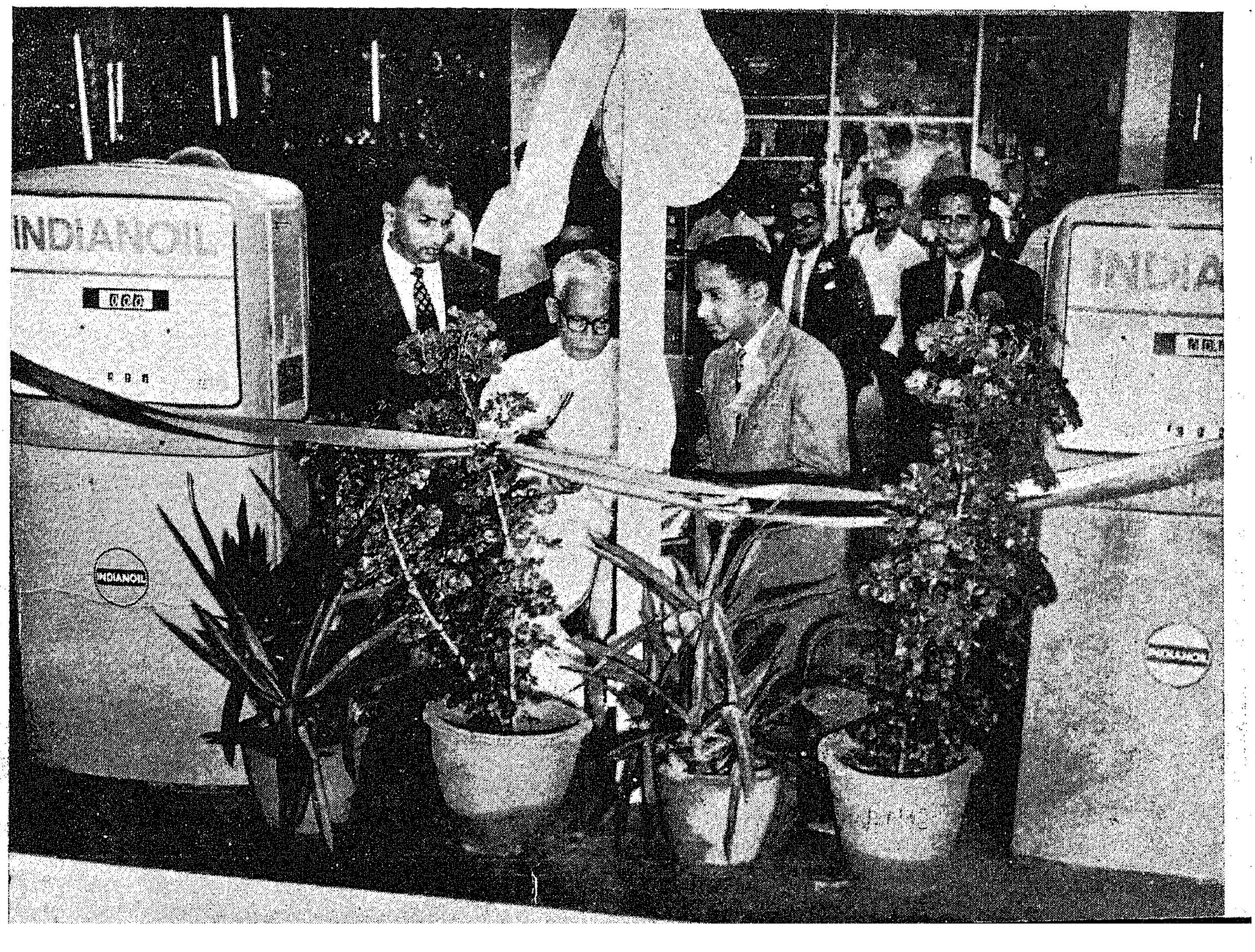
Highways Research Station

The Highways and Rural Works Department is incharge of the Road system of this State. The major works of this Department are executed economically and scientifically with the assistance of the Highways Research Station with its bitumen, soils, concrete and structure and traffic laboratories. Soil tests are conducted and pavements designed for roads in black cotton soil and sandy areas to suit the intensity of traffic. After tests, sea sand is being utilised economically for road works of the Corporation of Madras and the Highways and Rural Works Department. The bitumen works in the Corporation are controlled by tests in the Research Station and dense mixes have been evolved. The traffic roundabout at important junctions in the muffasal are designed by the Traffic Laboratory.

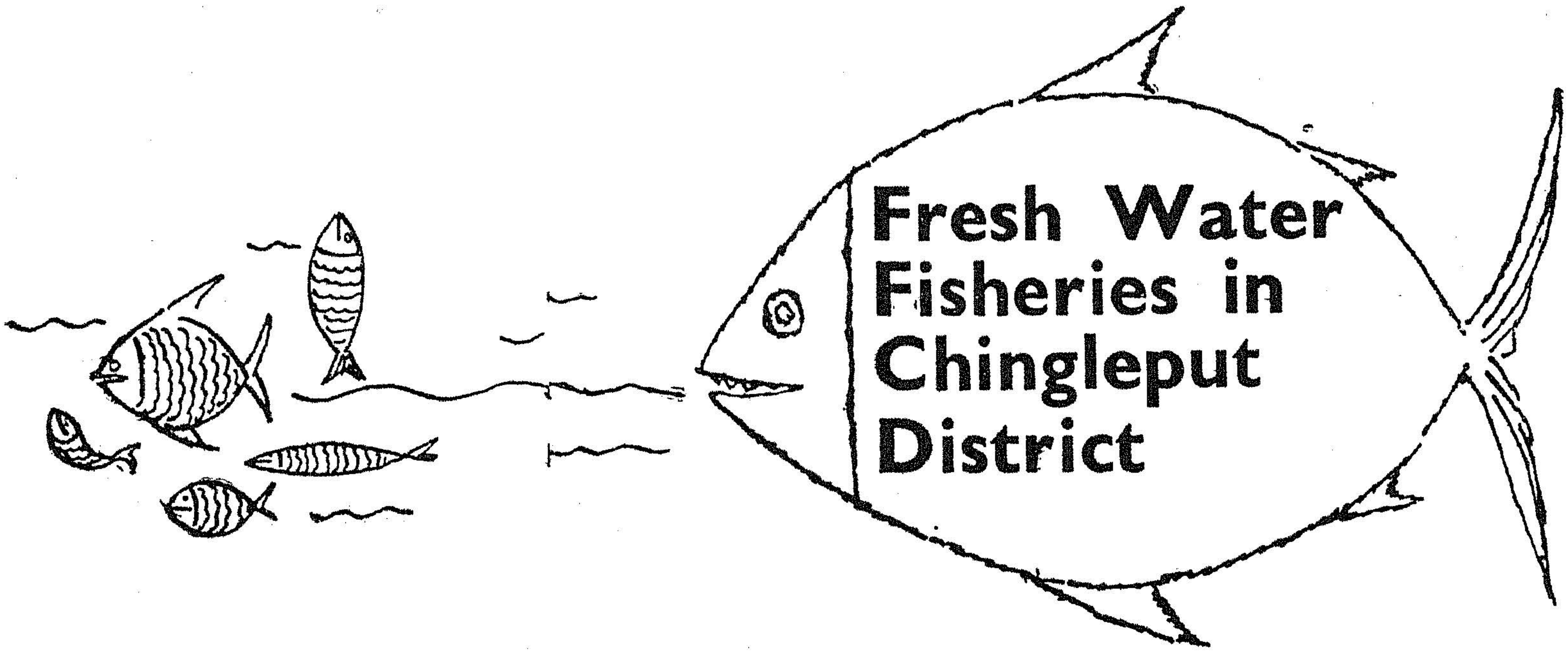
The traffic patterns in Mount Road, Poonamallee High Road and other main roads and roundabouts and automatic signals in road junction in the Madras City were investigated and designed by the Traffic Engineering division of this Department in colloboration with the Police and Corporation authorities.

In all it may be said that the Madras State has a well knit system of roads. Wherever necessary the roads are being improved and widened for a four-lane traffic and two-lane traffic depending on the intensity of traffic. By-passes too are under development to avoid congestion and trafficking in important cities and industrial belts. During the last decade the State has witnessed a phenomenal increase in total mileage of roads. This to a large extent is the result of the Government's fundamental policy of providing better transport facilities to the tiller of the soil thus bringing the towns and business centres within the easy reach of the rural economy. With the increase in the laden weight bridges over important routes such as Neyveli-Salem have also been taken for reconstruction. It should be noted that some expenditure on road development is being incurred outside the Third Plan allocation as "Non-Plan expenditure". The present road intensity of 0·5 per 100 square miles will be increased to 0·55 by the end of the Third Plan.

Sri M. Bhaktavatsalam, Chief Minister inugurates the filling station of Indian Oil Corporation at Wall-tax Road.



Fresh Water Fisheries in Chingleput District



Sri V. D. SPURGEON,
Assistant Director of Fisheries (Information), Madras.

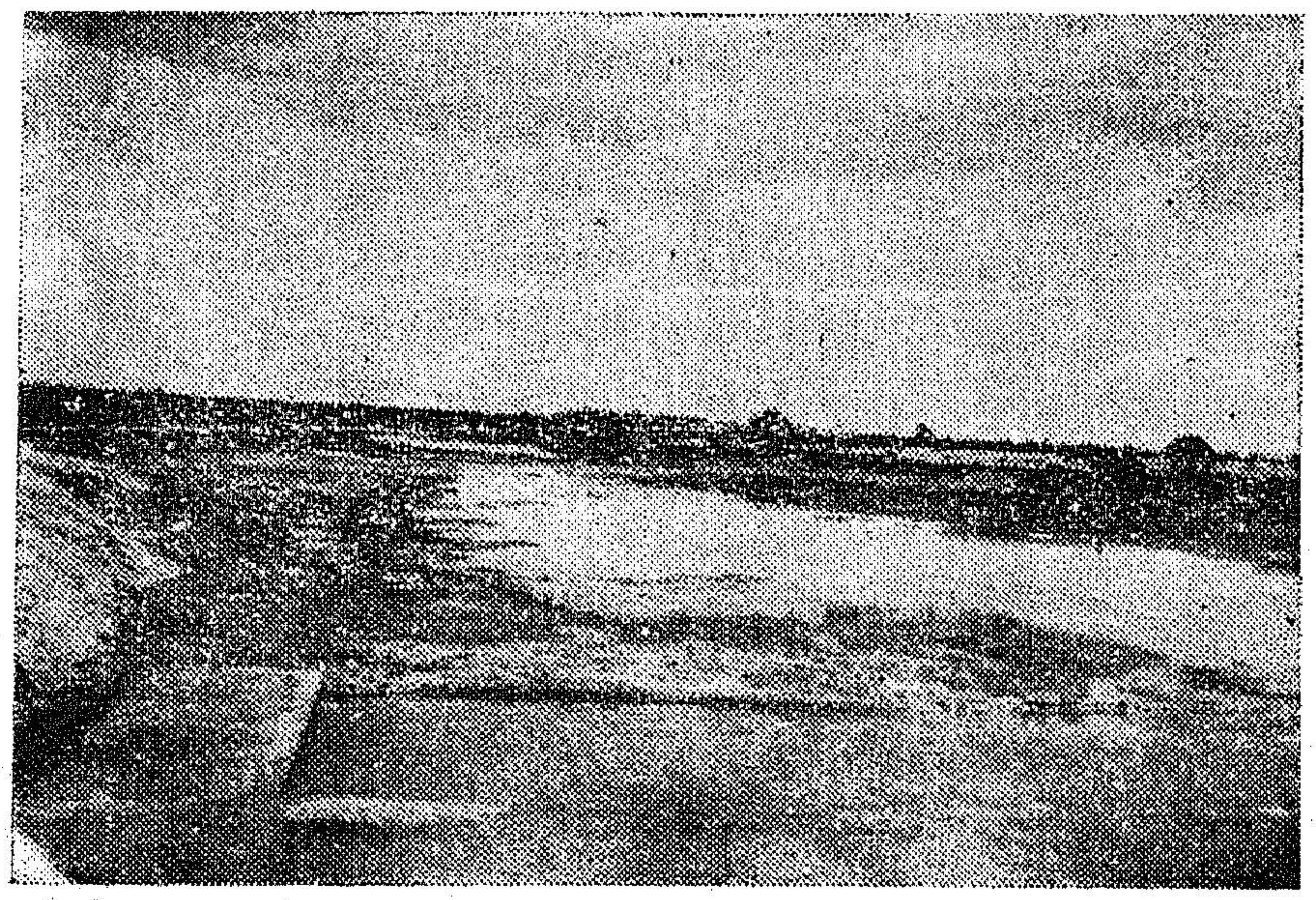
One is pleasantly surprised to see a tank at every corner and a "kanmoi" at every mile along the roads, that criss-cross the entire length and breadth of the Chingleput district. The Author travelled to Pulicat, Ponneri, Minjur, Gummudipoondi, Ennur, Trivellore, Poondi, Tambaram, Chingleput, Madurantakam, Tirukalikundram, Singaperumalkoil, Mahabalipuram, Kancheepuram, Sriperumbuthur, Kattamkolathur, Vedanthangal, Karunguzhi, Mogalvadi, Chunampet, Covelong, Walajapet and Tiruthani, and saw everywhere beautifully stone built square perennial temple and village tanks full with luxurient weedage. Total area of water spreads comes to 200,000 acres. If only every piece of water, small and big is stocked with just ½ a dozen of fish (Tilapia) it will spread like "wild fire" and Madras City Markets will be flooded with fish besides providing to the villagers enough of this cheap but protective protein food.

Therefore, the Fisheries Department has initiated a comprehensive programme for maximising pisciculture in Chingleput district. Broadly speaking they are as follows :—

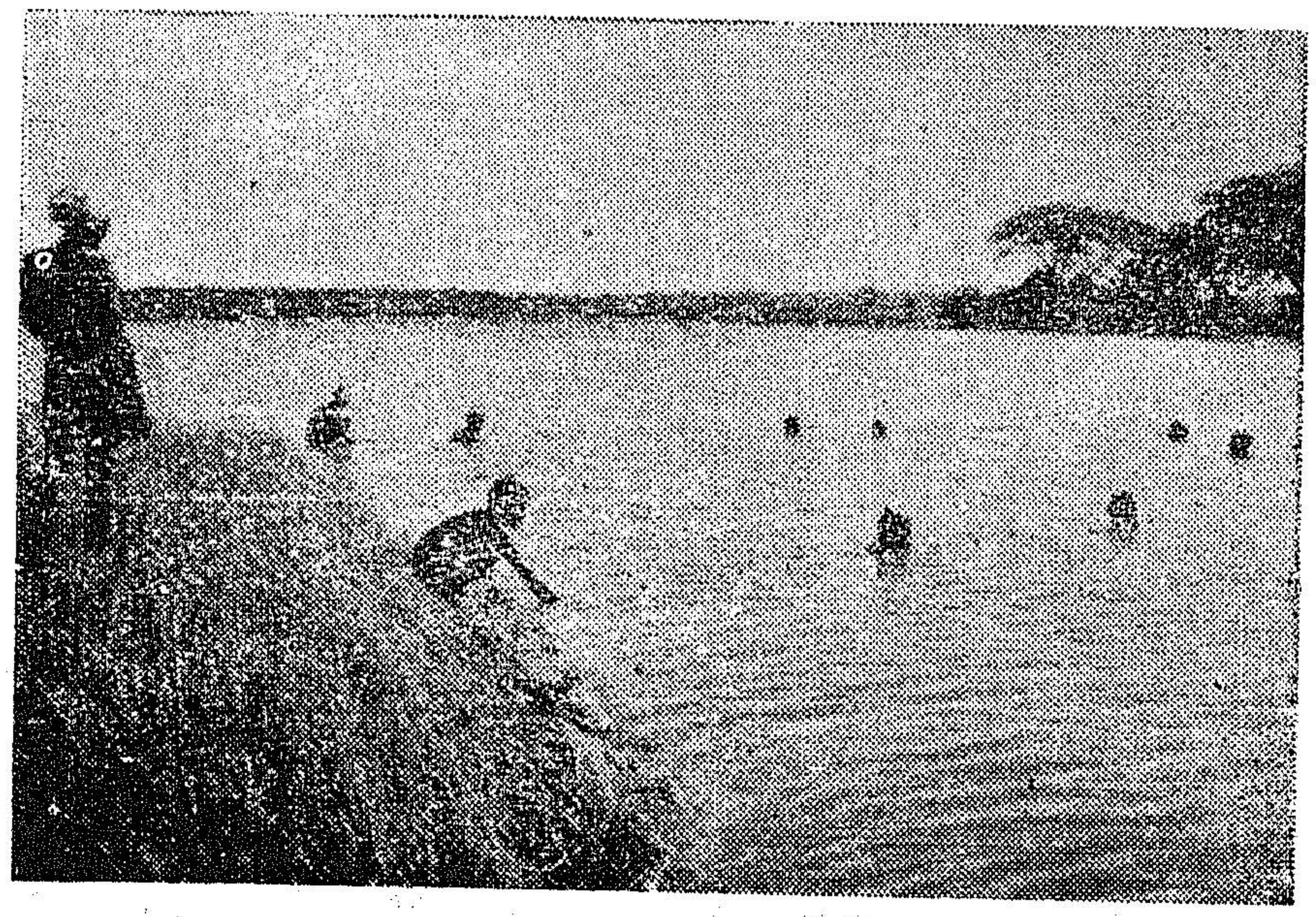
	ACRES
I. Rural Fishery Demonstration Scheme.	16,446 (perennial)
II. Provincialised Waters Scheme ..	32,000
III. Intensive Seed Collection Scheme.	..
IV. Block Development Scheme ..	145,375 (short seasonal)

Demonstration of fish farming

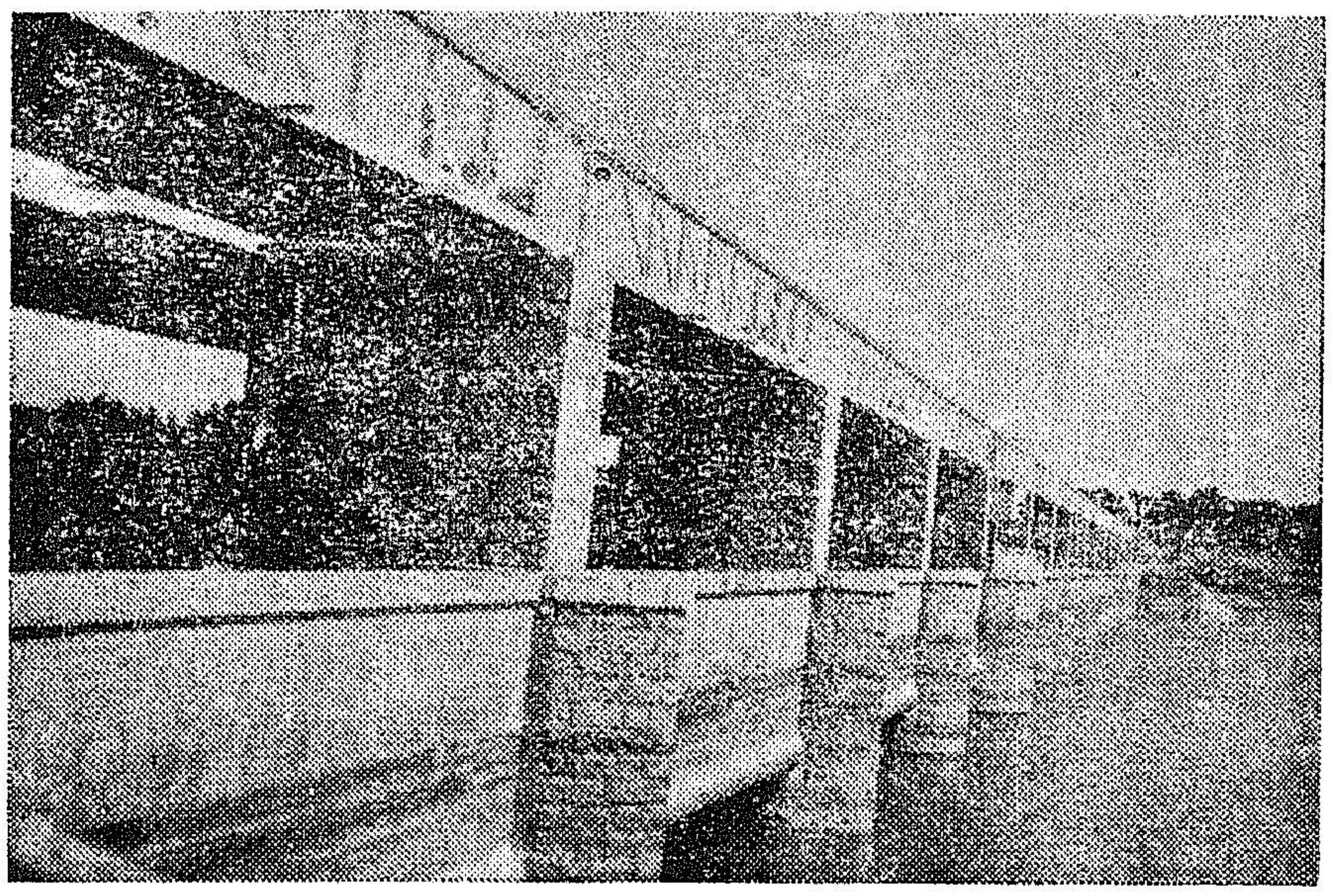
Under this scheme the department demonstrates *practically* as how profitably grow fish in tanks and ponds. The Demonstration Units function in different taluks at Chingleput, Kancheepuram, Sriperumbuthur, Karunguzhi (Madurantagam) and Ponneri. At Chingelput the



Kilotiar in Chingleput district.



Departmental Fishing in Buderi (near Poondi).



Poondi Dam.

Fort Moat, Karuppuchettikulam, Thimmarajakulam, Kaluvoy and Veepankulam are producing succulent fish and these are sold in fresh condition daily at the office of the Local Inspector of Fisheries near the Bus stand.

The main objects of this scheme are :—

(i) To demonstrate practically fish culture.

(ii) To sell good fish, at fair price.

(iii) To supply seeds of food fishes and mosquitocidal varieties.

(iv) To educate masses and the lay by propaganda, lectures and exhibitions and the like.

The Kaluvoy lake meets the eye of every rail passenger who passes through and looks like "sea" and covers an area of 1,776 acres and produces tons of fish. The lake is licensed for fishing. Karuppchettikulam teems with Tilapia.

At Ponneri there is one Fishery Demonstration tank, at Kancheepuram there are four at Sri perumbudur there are four and at Karunguzhi there are three model fish rearing centres.

Provincialised tanks

In this scheme there are 39 tanks in Chingleput district. These are huge irrigation "Kanmois" whose fisheries are wild but scientifically tamed and developed by the department.

From 1960 the provincialised tanks are being fished by the department itself to correctly assess their fisheries pattern and also for more revenue and show how fishing has to be done on proper lines.

Under the scheme *chanos* fish seeds are collected from salt factory estuaries at Chunampet during June and July every year. *Chanos* is a marine fish but acclimatisable to fresh water and they thrive remarkably in tanks with "green water".

Osphronemous gourami.—Introduced in the Fort Moat are breeding and fingerlings have been collected and supplied to other States.

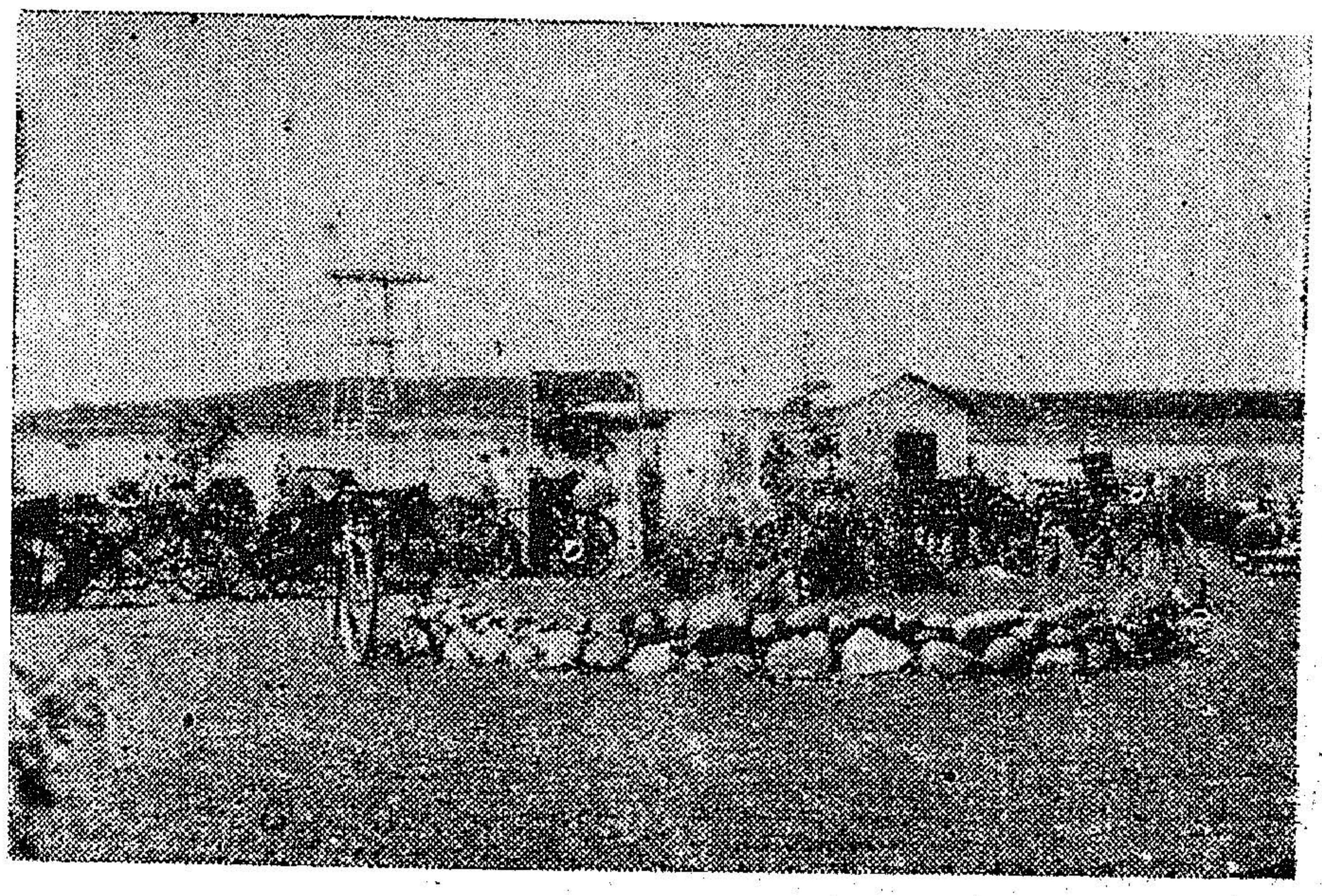
In Chingleput district 10 "Blocks" are working in the following places :—

1. Thirukalikundram,
2. Uthukottai.
3. Sriperumbuthur,
4. Madurantagam,
5. St. Thomas Mount,
6. Minjur,
7. Kattankolathur,
8. Kancheepuram,
9. Poondi and
10. Gummidipoondi.

A separate fishery scheme has been sanctioned for intensive stocking in rural "Blocks". Under this scheme the fishery work is entrusted to the Panchayat Unions and executed by the "Blocks" with the active collaboration of the Fisheries Department. Ten Nurseries are being constructed in these "Blocks". By the new harmone injection method, breeders will be artificilly induced to spawn. The hatchlings will be reared in nurseries and distributed throughout the "Blocks". The present production of piscine protein from fresh waters is 17,895 M. tons yearly.

There are two fish Farms in Chingleput district. One is at Chingleput and another at Poondi. The only Marine Biological Specimen Supply Station in the whole of India is in Chingleput district and is run by the department. Excursion parties from schools and colleges and visitors from abroad visit this enjoyable Fisheries Station all the year round.

Thus Chingleput district has earned for herself a prideful place in piscicultural programme of the State.



Fish is being transported by cycles from Poondi Reservoir.

MANUFACTURE OF CEMENT BY SHAFT KILN PROCESS

The methods of manufacturing Portland cement may be divided broadly into two processes the wet and the dry processes. In the dry process, calcereous and clayed materials are separately crushed and dried, compounded in suitable proportions, pulverised and then heated to incipient fusion in a kiln. The resulting clinker together with gypsum is finely ground into a fine powder viz., Portland cement. In the wet process no drying is effected at the raw material stage and the materials are pulverised and fed into a kiln in the form of a slurry containing up to 40 per cent water. In other respects, the wet process is the same as the dry process.

Shaft Kiln Process

Though the cement industry in India employs both the processes, the wet process is pre-dominant. Under special circumstances cement is also manufactured by the semi-dry and the shaft kiln processes. In the semi-dry process raw materials as used in the dry process are sprayed with water (approximately 10 per cent) and granulated at the kiln inlet and fed into the kiln. The Leopl system in which besides a drum type granulator, an endless travelling grate is used for feeding the granules into the kiln. In other respects however it does not differ from the dry process. The granulate raw materials are fed to the kiln and fired in the vertical kilns. As the kiln performs also the work of cooling, a separate cooler is not required.

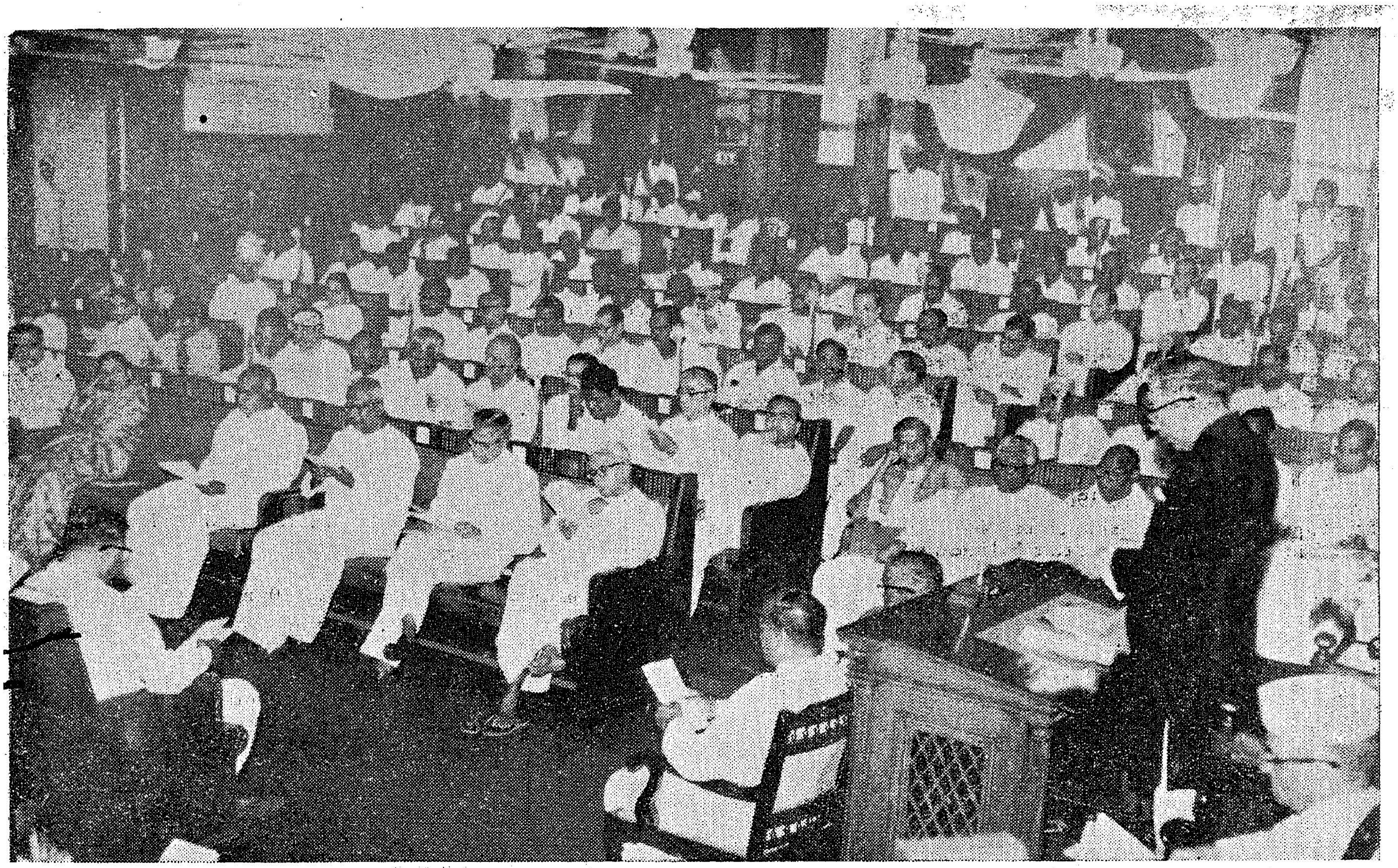
State Level Committee for the Rural Industries Project recently meet at Secretariat. Sri M Bhaktavatsalam presided

The first kiln for the manufacture of cement was built by Joseph Espdin a little more than a hundred years ago. The Kiln resembled the conventional lime kiln. Modern methods of cement manufacture have been introduced since the last fifty years when the importance of correct chemical composition of the raw mix, the high temperature of burning and of fineness of cement were duly recognised. There has therefore been a continuous improvement of manufacturing techniques and in consequence, the quality of cement and economy of operation of cement plants have steadily improved. The early modified kilns used in the cement manufacture were shaft kilns. In the operation of these kilns a larger manual labour was employed and the quality of cement was inferior. Later the shaft kilns were, therefore, discarded by the cement industry as obsolete and replaced by rotary kilns. The rotary kiln plant represented a great improvement as it permitted the blending of raw mix in the form of slurry, which, in turn made it possible to achieve the required chemical composition in efficient and cheap operation. Thus with the introduction of rotary kilns manufacturing operations in cement plants have become mechanised.

The raw material charged in the old shaft kilns was in the form of bricks of ordinary size which were made from raw meal water and coal in suitable process, situated on the feed platform of the kiln. These were fed into the kiln by manual labour. The bricks required a comparatively long time for proper burning and even so the core of the bricks often remained soft and inadequately burnt, thus affecting the quality of cement.

Rotary Kiln Plant

The rotary kilns when first introduced were about 100 ft. long and were fired by pulverised coal flame. The daily output varied from 10 to 100 tons. The fuel consumption was rather high using up to 60 percent of high grade bituminous coal but this additional expense of coal was regarded as worthwhile in consideration of saving in labour, and improved facilities of



Sri P. Chandra Reddy, Acting Governor of Madras, is seen addressing the Joint Session of the Madras Legislature on 18th January 1965.

operation. But in rotary kilns, heat transfer from the flame to the rolling material is not very efficient and besides the slurry is to be evaporated. The disadvantages were however more than out-weighed by the case of handling and blending of the slurry by centralised kiln control and by the subsequent saving of labour. These advantages became more pronounced by further development of the rotary kilns which led to longer kiln. However, large rotary kilns necessitated heavier steel structures, heavy foundation and larger buildings for their installation and called for a large capital outlay.

Shaft Kiln improved

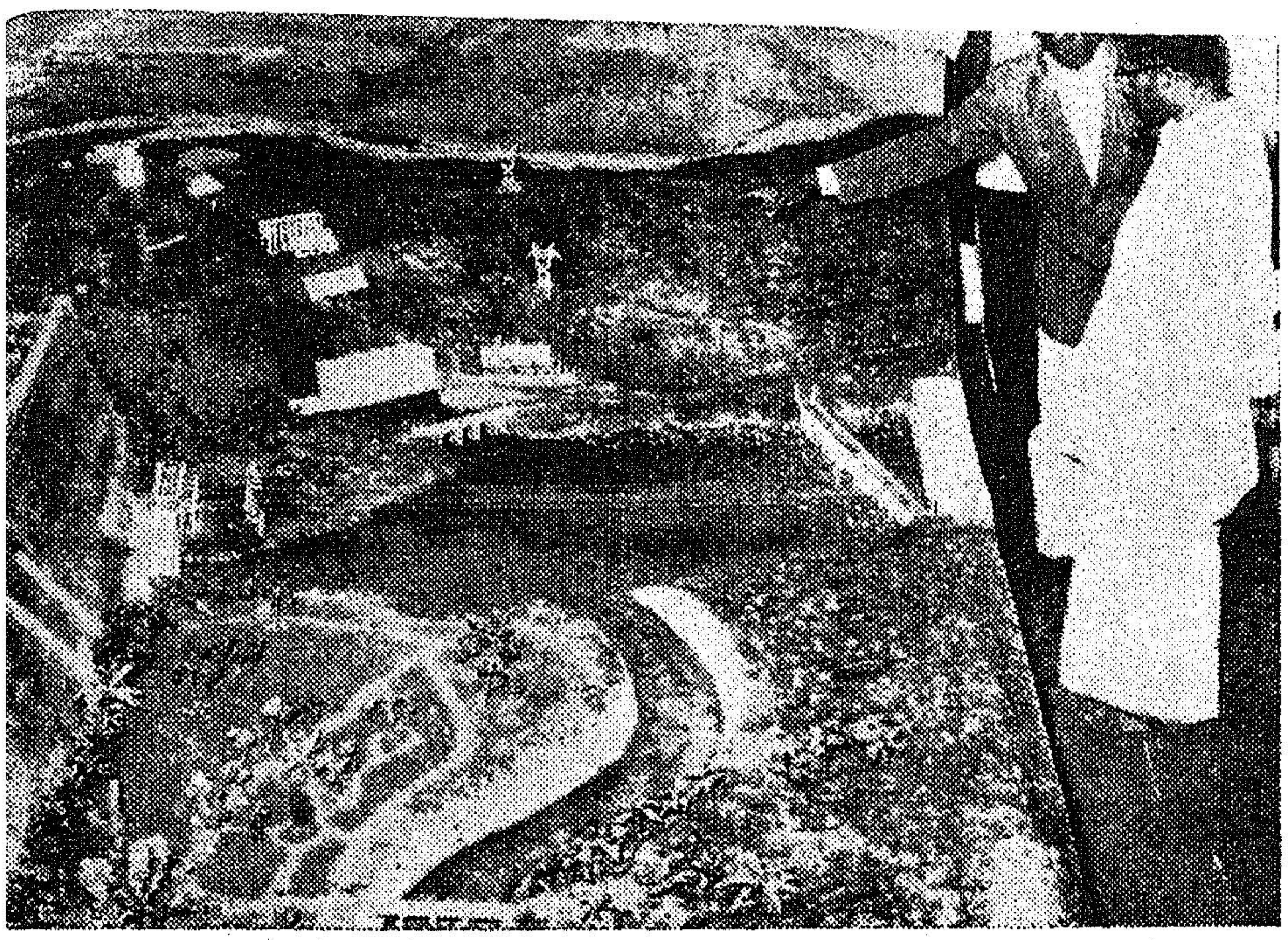
Side by side not withstanding the disadvantage of the early shaft kilns, a considerable amount of work has been done towards their improvement, for, the heat transfer in shaft kilns was always more efficient than the rotary kilns. In the shaft kiln, heat is transferred from the gases to the materials mainly by convection and the material surface is relatively large while in the rotary kiln, heat is mainly transferred by radiation to the relatively small surface as presented by the forward rolling material. In due course, it became evident that if the shaft kilns were to become successful, a centralised kiln control similar to that found in rotary kiln had to be accomplished, the size of the feed reduced and discharge from the kiln improved. A better way of burning cement would thus be achieved which would have several advantages over the rotary kiln burning method.

In the shaft kiln process the granulated raw materials are fed to the kiln through the upper revolving feeder chute. After burning they are taken out through the rotary grate and discharging device. The work of the past fifty years has resulted in special firebricks and high pressure ventilation system. Subsequently, the following improvements and changes have been made in the shaft kilns.

(i) Sintering zone is kept very high compared with that of the conventional shaft kiln.

(ii) Before reaching the rotary grate the temperature of treated clinker comes down to as low as 200° C and can be taken out without causing damages to the rotary grate.

(iii) As the fire bricks are of special type, they will not melt even when the temperature of the sintering zone rises.



Sri C. Subramaniam, Union Minister for Food, has visited the All India Khadi, Swadesi and Industrial Exhibition at Madras on 15th January 1965.
Sri Appadurai, Chairman, State Electricity Board, is seen explaining a model project to the Union Minister.

(iv) Superior uniform clinker can be produced as the supplied materials are hard and uniform in size being granulated by the excellent granulator as aforesaid.

(v) Fuel consumption per ton of clinker is 950,000 to 1,000,000 Keal.

(vi) Coke dusts (Anthracite) with the heat value over 5700 Keal/Kg. may be used for the manufacture of cement.

(vii) Power consumption is cut down to 85 KWH per ton of cement as coal is not required to be pulverised so finely as in the case of a rotary kiln.

(viii) Being lined with special type firebrick this shaft kiln stand much longer than the horizontal type.

Advantages of Shaft Kiln

While the earlier shaft kilns were quickly replaced by the rotary kilns on account of many advantages offered by them there is again in evidence a shift in favour of the shaft kilns as a result of the improvements effected therein mainly by the introduction of the moduliser and also by a series of other developments. It is now claimed that the vertical kilns can produce cement of the highest quality and uniformity very much similar to that produced from rotary kiln. The most important advantage of the vertical kiln plant is its comparatively low cost of installation.

While the establishment of the rotary kiln plant in India estimated to cost approximately Rs. 120 per ton annual capacity the cost of a vertical kiln plant is only Rs. 80 per ton annual capacity or even less depending upon local factors such as cost of raw materials, labour, etc. Moreover it is possible to make the operation of small shaft kiln cement plant of 50,000 to 60,000 ton capacity per annum nearly as economical as that of a larger rotary kiln plant. Smaller shaft kiln plants have another advantage over rotary kilns plants. In areas where either the demand is restricted or raw material (mainly limestone) availability is limited a shaft kiln plant would be the obvious choice. In India where the transport facilities are yet to be developed to cope with the demand and where the need to conserve foreign exchange is likely to persist for many years to come, the shaft kiln cement factories appear to offer immense possibilities of quick developments which would also be seen from the following comparative study.

		Rotary Kiln Plant	*Vertical Kiln Plant*
1	Cost of plant ton annual capacity.	Rs. 120—125	Rs. 65—70
2	Time of delivery of the main plant and equipment.	24—20 months	8—12 months.
3	Time of erection ..	30 months ..	12 months.
4	Fuel	High grade bituminous coal or fuel oil.	Local grade slack coal anthracite or semi bituminous coal coke breeze of fuel oil.
5	Amount of fuel used per ton of cement.	2700—4000 BTU	1600—2000 BTU
6	Number of men employed per ton of cement per year.	1000	800
7	Power consumption in KWH per ton of cement.	105	110
8	Amount of water needed in percentage of cement produced.	65 per cent ..	22 per cent.

Economic factors

Although it has been claimed that the working of a vertical kiln plant in its present modified form can be as efficient as that of a rotary kiln plant it is not without certain reservations. The local conditions such as quality and total availability of limestone or other cement making materials such as labour costs, transport charges, etc., would ultimately determine as to which of the two processes should be adopted. It is recommended, therefore, that the following factors should be taken into consideration before selecting either of the two methods.

(i) The proposed plant site indicating the type of soil and depth of water level.

(ii) Location of the quarry in relation to the proposed plant site.

(iii) The type of limestone and clay or shale available, their chemical composition, variation of moisture, physical properties like hardness, grindability, etc. and topographical information of the deposits.

(iv) Availability and cost of power and water.

(v) Type of coal available indicating its BTU ash content, ash analysis, volatile matter, ignition point or moisture variation.

(vi) Chemical composition of the gypsum and its physical characteristics.

(vii) Availability of labour and prevalent wages for skilled and unskilled workers.

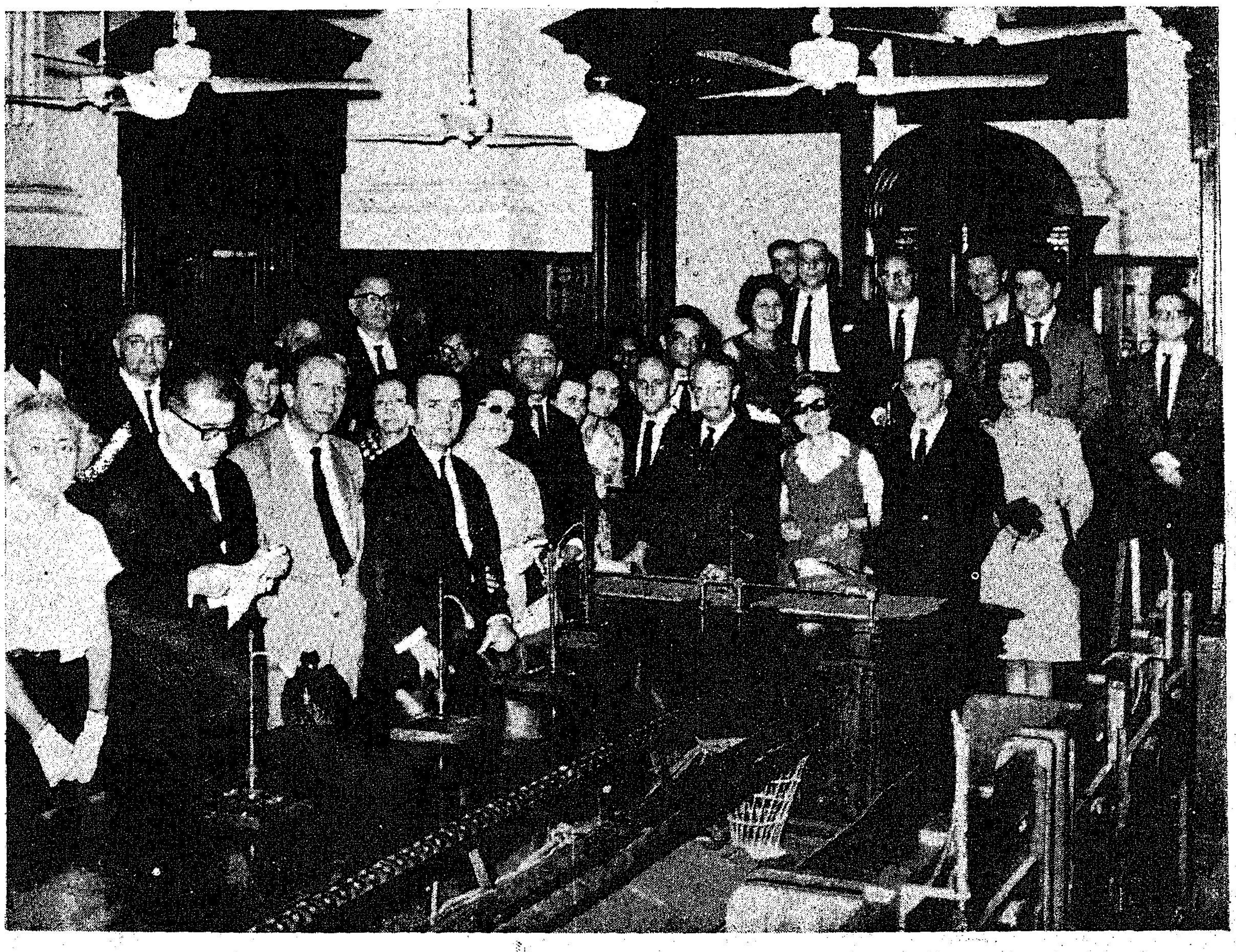
(viii) Climatic conditions, average rainfall, maximum and minimum wind and dust storms and barometric height.

(ix) Existing road, rail and other transport communications.

It is only after the above factors are known and are properly assessed that the economics of productions by either of the two methods can be worked out. In general for large production of 2 to 3 lakh tonnes per year a rotary kiln plant would be decidedly advantageous as the rotary kiln plants are built up to 750 to 500 tons daily capacity while the highest output from a vertical kiln plant is only 175 to 200 tons per day. It is, however, claimed that the cost of production of cement in the vertical kiln plant would be nearly Rs. 55 to 60 per ton of naked cement. A rough assessment of cost of production is given below ;—

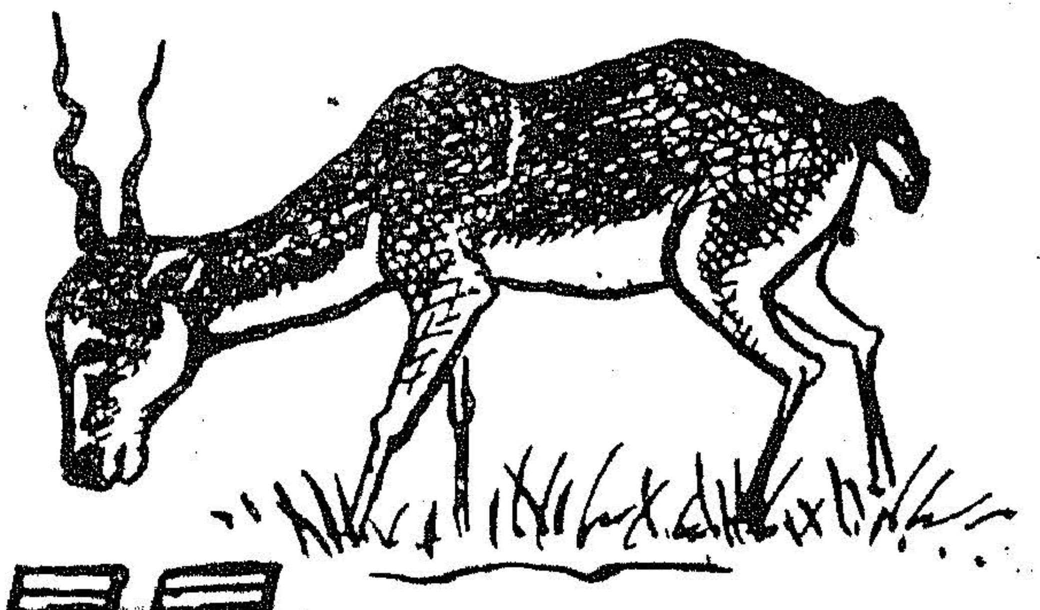
Item.	*Cost per ton of cement.*
(1)	(2)
	RS.
Raw materials i.e., limestone and clay ..	8
Gypsum	4
Coal	12
Powder and water	6
Spare parts, lubricants and maintenance.	6
Labour wages	6
Staff salaries and overhead charges ..	4
Depreciation	6
Other items including interest on capital, etc.	2
Total ..	69

The plant and mechinery for a 175—200 ton daily capacity unit would cost approximately Rs. 45 lakhs.



Brazilian Parliamentary delegation has recently visited the Assembly and Council Halls of the State Legislature.

PROBLEM of WILD LIFE CONSERVATION

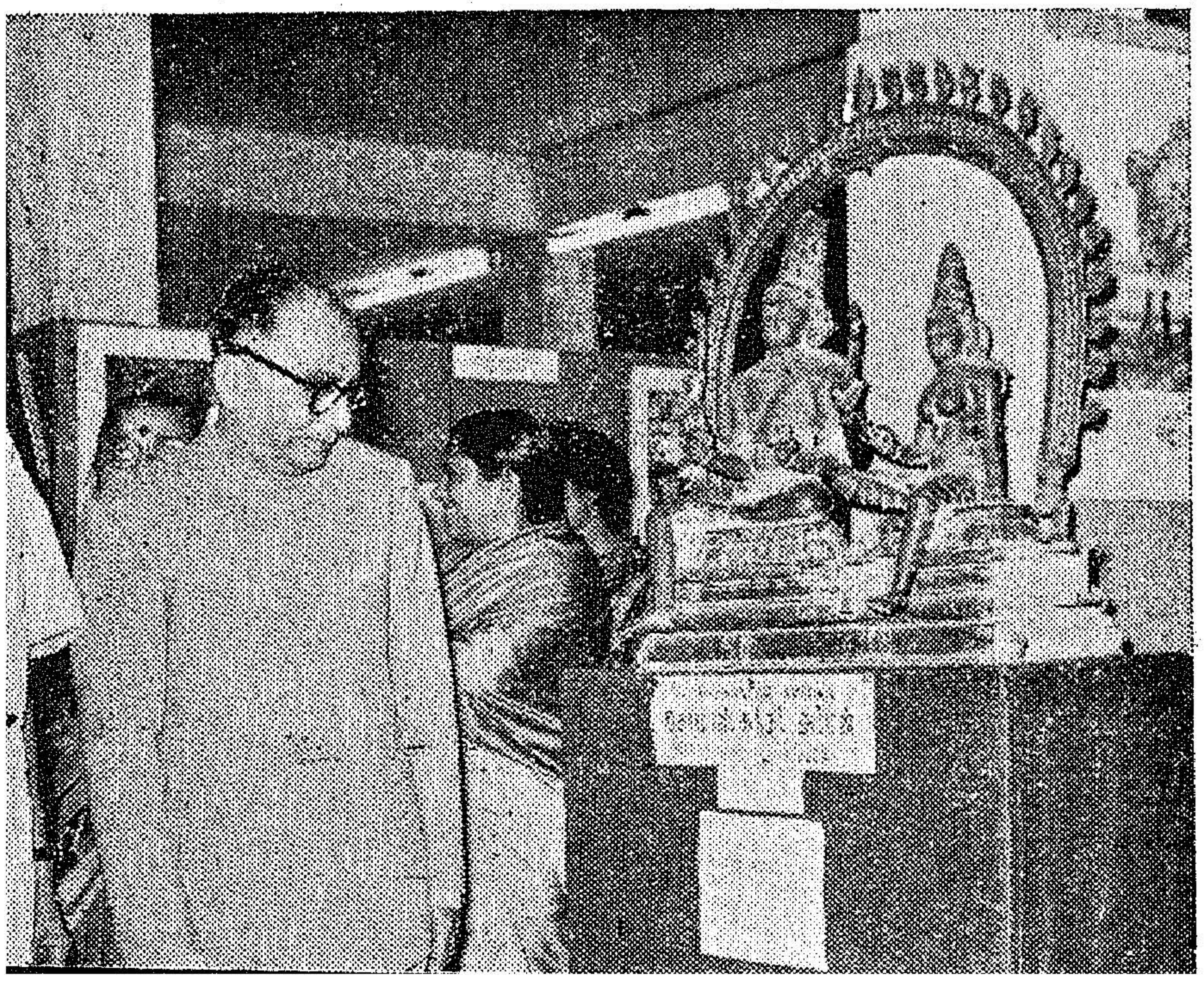


SRI T. JAYADEV,
Chief Conservator of Forests, Madras.

The conservation of the magnificient animals of the forests and the wide variety of birds is beset with peculiar problems. But the need to protect the valuable fauna, some on the verge of extinction, is so urgent that the problems will have to be faced squarely and determined action taken for the sake of preservation of incalculable wealth of the nation.

The area under the control of Madras Forest Department is about one sixth the area of Madras State. This area of about 21,000 square km. is the main abode for all species of wild animals indigenous to this region. Besides the area under forests, some non-forest areas comprised of stoney plains, waste lands, and lakes also shelter wildlife like small mammals, upland game birds and waterfowl, both resident and migratory.

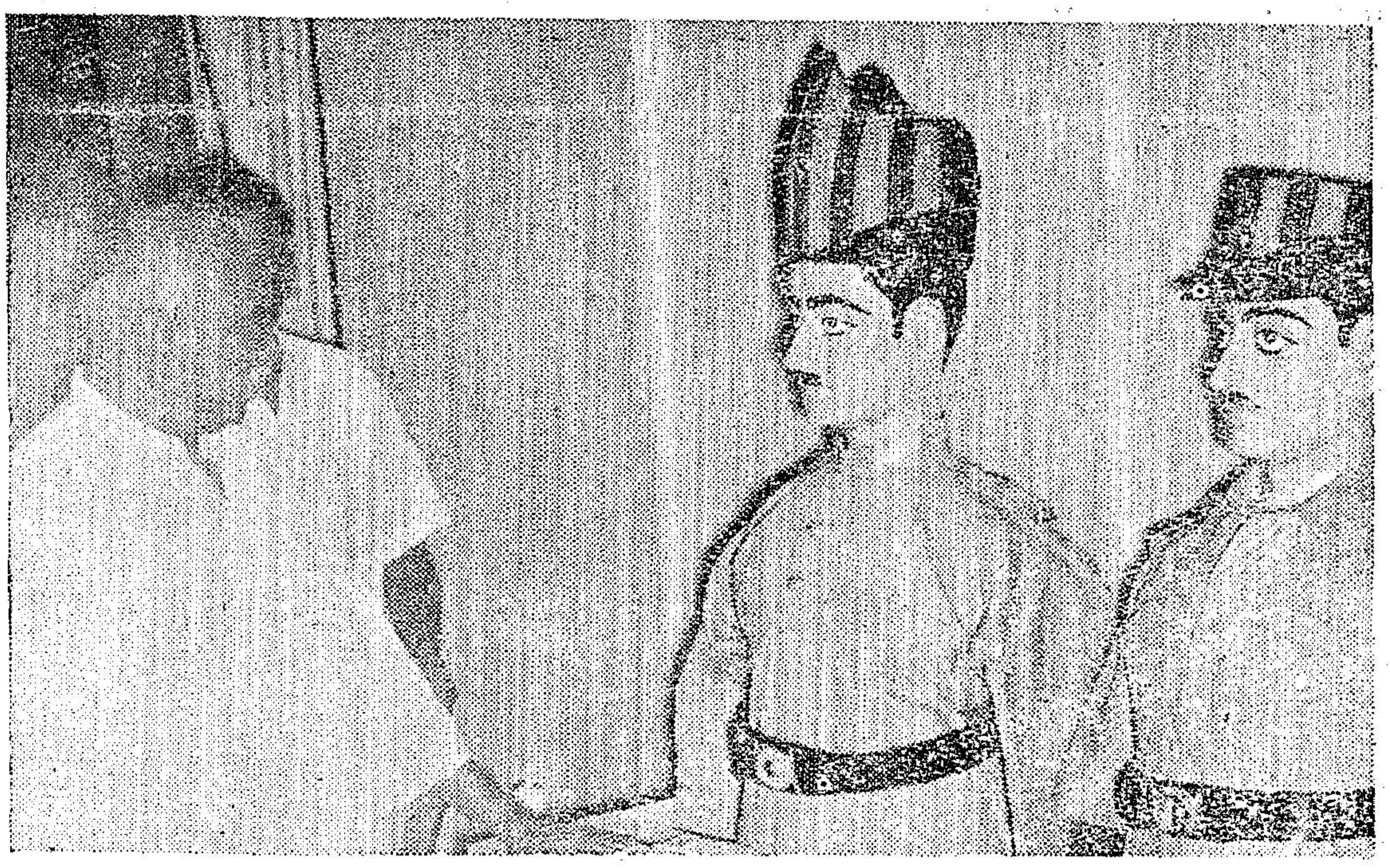
Sri P. Chandra Reddy, Acting Governor of Madras, visited the All India Khadi, Swadesi and Industrial Exhibition at Teynampet on 15th January 1965. The Governor is seeing some of the exhibits.



The wild animals in the Reserved Forests are protected under the Madras Forest Act of 1882. The wildlife in the area outside the Reserved Forests are protected under the Wild Birds and Animals Protection Act of 1912 wherever such protection is needed. This Act has been invoked in respect of 14 waterfowl refuges notified in the various districts.

Under the Forest Act even simple trespass into the Reserved Forest constitutes an offence. Shooting is totally prohibited except under a licence governed by close conditions. Protection of the forests, and its denizens is a duty of the forest staff. Though the forest staff is there to protect the fauna, their task is not wholly devoted to wildlife protection alone. Compared to the magnitude of the problem of conservation of wildlife the task assigned to them is limited. While there can be no chance of 21,000 square km. of Reserved Forests being appreciably reduced there is a danger of some small areas supporting certain specie of rare animals being alienated. To guard against this, a second line of defence has been deviced. Such areas are called wildlife sanctuaries or parks where the rarer species are allowed to breed in peace and multiply. To intensify protection in such areas a separate organisation styled as the State Wildlife Organisation has been created. The whole area of the reserved forest is no doubt the above

Sri K. Kamaraj, Congress President, who inaugurated the All India Khadi and Village Industries Exhibition at Teynampet is seen in the picture witnessing the replica of bust size police constables.



of game and other animals but certain species of animals concentrate in areas ecologically suitable for their living and therefore special steps have been taken to protect such areas as public property.

Peoples' responsibility

In the district of Nilgiris, Coimbatore, North Arcot, Salem, Madurai, Tirunelveli and Kanyakumari, there are some naturally protected areas; steep hills, precipitous slopes, deep valleys and gorges not accessible to man. So far man has not been able to easily reach these regions on account of the difficult nature of terrain. Glimpses in the valleys of Manjampatti (Coimbatore district) and Muthukulivoyal (Kanyakumari district) have revealed some rare species of animals like the ash coloured bison and the lion tailed macque. At the very sight of man these animals disappear. It is hoped that these impregnable fortresses of nature will ever remain as reservoirs of our wildlife. I shall not be surprised if some of the rarer species which have retreated to these pockets due to relentless persecution in the past emerge from these areas, when things have settled down and a cordial relationship between man and beast is established.

There is no need to fear that the fauna of Madras State is diminishing though it will be idle to pretend that there are no forces at work which should be guarded against. There are many problems confronting conservation of wildlife. It shall not be possible to solve these problems without the co-operation of the public. The area is so extensive and the problem so varied and complicated that however earnest the Government machinery may be, it will not be easy to solve these problems without public support and backing. The greatest handicap is that there is no strong public opinion on the subject of wildlife conservation in the country and until this is created, little will be accomplished. Unless every citizen thinks that he is a member of the watch and ward for protection of nature our wildlife has no bright future.

Danger from many sides

The greatest menace to wildlife are the crop protection guns. Damage done to crop by wild beasts is very much exaggerated. There seems to be no justification for the continuance of issue of such licences now. These guns have caused considerable damage to wildlife, damage that could be mitigated if these guns are deposited with the police when the crop is over.

Many others residing in remoter areas in close proximity to forests possess unlicensed weapons which are carefully concealed and constantly used. Recently one such weapon was discovered but the owner could not be traced. The weapon was found buried in the ground.

The enormous increase in the issue of gun licences present a constant threat to our fauna. 28,039 gun licences were issued as on 1st January, 1962, when the total land area of Madras State is 50,000 square miles and the vulnerable area is about only one-sixth of the total area.

Lucrative foreign market for our wildlife and wildlife products is another potential danger to our wildlife which should be guarded against. There is a great demand for reptile skins, feathers of grey jungle fowl, peacock, king fisher and other brilliant plumaged birds. Legislation declaring wildlife as the property of the State to control marketing of all wild animals and its products throughout the State will go a long way in saving our fauna.

Another danger to wildlife is the nomadic tribe of professional bird trappers going by the name of

" Narikoravans ". Great number of partridges, pea-fowls, jungle fowl, quails and water fowl are snared by the members of this tribes and sold in markets and streets throughout the year. If the members of the public express their strong disapproval of such injurious practices by refusing to purchase these birds, this practice will cease. Here is a chance for the members of the public to strengthen the hands of the Government in their efforts to save wildlife.

Chiefly Human Problem

Thus you will see that the problem of wildlife conservation is chiefly a human problem. If we do not interfere with nature and allow nature to manage her own affairs, there will be no problem at all. More and more animals will be able to survive if man does not kill them. Until it is widely recognized that wildlife is our valuable natural resource from which many benefits accrue to mankind, destruction will continue until the resource is exhausted and the benefits disappear with harmful repurcussions to human existence on this earth.

The celebration of wildlife week has really awakened public consciousness in recent years as evidenced from the gradual change in man's outlook upon the domain of nature. It has created the more humane conception that it is the duty of the man to ensure that wildcreatures are not annihilated. To day there is no educated person who does not realize that the kingdom of nature provides science with a vast and produtive field for research.

Apart from humanity which in itself should compel man to grant the lesser creatures, the right of existence, there are other considerations which must influence him. There are numerous investigations, anatomical, physiological, ecological, geographic and evolutionary which can only be made by the study of animal life.

It is now admitted all over the world that the natural beauties of a country, its varied fauna and flora are the most important asset to its people ; an asset to be protected and preserved to their own advantage and to the advantage of future generation.

I have placed before you some of the problems confronting wildlife conservation in Madras State to-day seeking your help, guidance and co-operation in solving them to put our fauna on a stable and sound footing. It is my firm conviction that no scheme of this magnitude can ever be successful without the public support. The scheme of nature conservation can be ensured only with the goodwill of the people. We must try to preserve with all our effort the wildlife that inhabited the forest and their surrounds.

DON'T
PUNISH
YOURSELF

It is illegal to use old weights and measures for buying or selling; even quoting prices in terms of old units is punishable.

Besides, you punish yourself every time you indulge in transactions based on Seer or Maund; you get less than your money's worth !

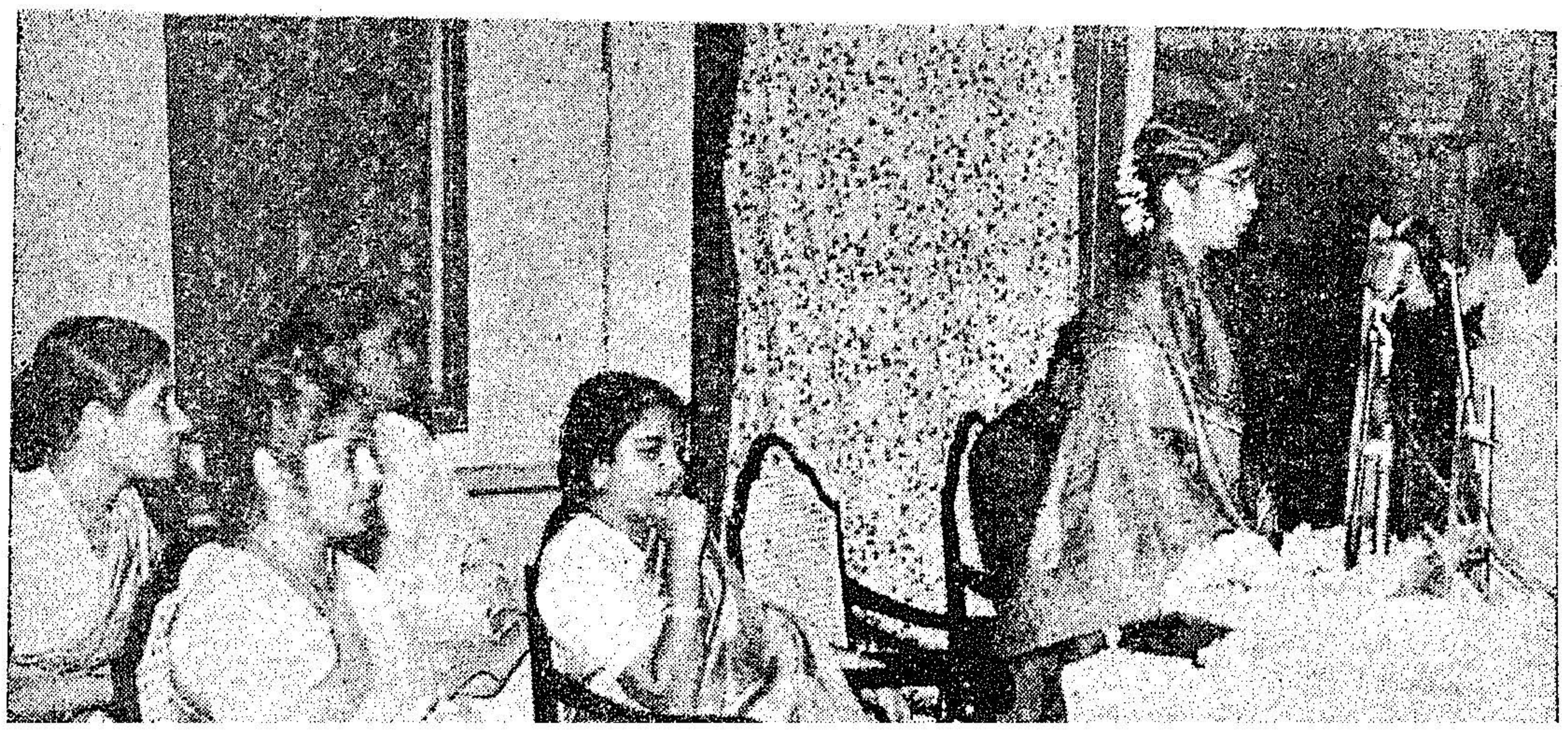
It is not enough for the trader to use metric weights.

buy in KILOS only

DA 64/510

Jammu and Kashmir Cultural Troup which paid a vi[sit]
to the City recently.

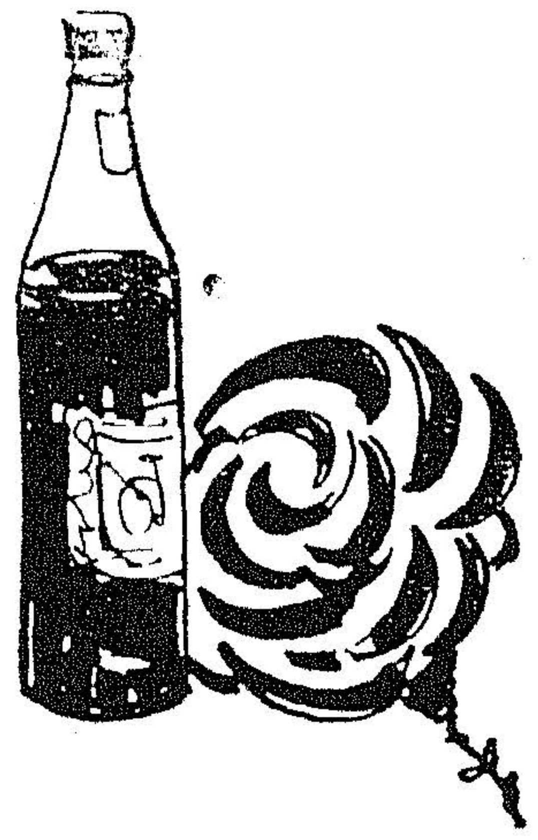
Sri G. Bhuvarahan, Information Minister, presided over the Family Planning Day Celebrations at the General Hospital.



Smt. Sarojini Varadappan, Chairman, State Social Welfare Board, inaugurated the Family Planning Day at Children Theatre on 18th December 1964.

PREPARATION OF

Syrups and Rose water



The following is a short note on the manufacture of Syrups, Rose water, etc., through distillation process. The note is based on the distillation centre at Chellampatti, working under the control of the Visvaswarayya Committee.

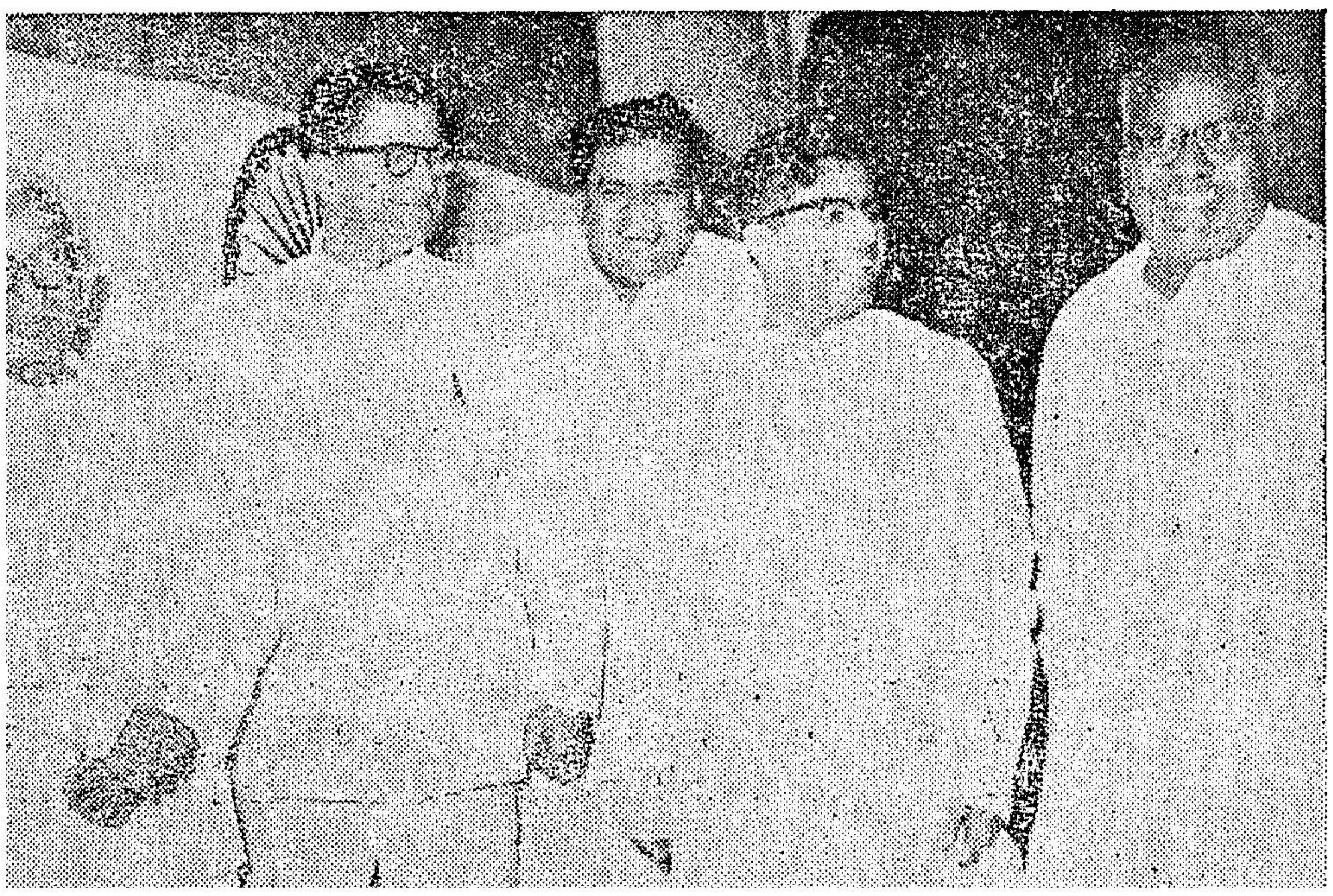
There exists a large scale demand for Nannari Syrup, Lime Syrup and Orange Syrup. These are very healthy drinks. Besides this rose water, omam water and distilled water for industrial use are also in great demand. These can be produced by distillation process very profitably. By establishing a small distillary unit a family of 5 members can very easily earn Rs. 300 to Rs. 500 a month.

Process of manufacture

For distillation of Nannari Syrup, the Nannari roots should be cut into smaller bits of 2 to 3 inches and finally jammed and soaked in cold water for about 24 hours in a mud pot. And this is put into distillation plant in the proportion of 5 measures of water to $\frac{1}{2}$ kg. of Nannari roots, and the essence is extracted. One kilogram of sugar is added to 2 bottles of 24 ounces each of Nannari liquid essence and boiled in a boiling plant till the sugar is saturated. Then this is transferred to a vessel and kept over another vessel containing cold water. The syrup now gets cooled down and it is put in bottles, sealed and labled. Similarly for the preparation of lime and orange syrups, the lime or orange is cut into bits and put into distillation plants and the liquid essence is extracted.

Sri C. Subramaniam, Union Food Minister inaugurated the Food Corporation of India on 14th January 1965 at Madras.

Picture shows (from left to right) Sri Bhaktavatsalam, Chief Minister of Madras, Sri T. A. Pai, Chairman of the Corporation, Sri Krishnappa, Minister of Mysore State, Sri C. Subramaniam and Sri Ramiah, Food Minister of Madras.



For the extraction of omam water, pepper, omam, raw ginger, Arisi tippili and jaggery is mixed together ground and put into distillation plant and the essence of liquid omam water is extracted.

In the case of preparation of rose water, rose flower and pannir flower is put into the distillation plant and the rose water essence is extracted.

For preparation of distilled water, water is kept for 2 days and then put into distillation pot and distilled. This is highly useful for industrial purposes and for changing batteries.

The capital investment required for the plant will be as follows :—

Non-recurring expenditure

A store room of 16′ x 12′ and a distillation room of 10′ x 8′ is required. This can easily be secured on a monthly rent of Rs. 20 in rural areas.

A simple cottage type distillation plant is required. For this we can easily use ordinary copper boiler with another covering vessel for distillation. This may cost about Rs. 250.

	RS.	RS.
Two drums made of galvanized sheets—each.	25	
A.S.S. steel jug or kettle	50	
Twelve mud pots	12	
Iron	25	
Boiling plant	15	222
One weighing balance weights ..	25	
Two funnel	2	
One set of sieve	3	
Half a dozen S.S. steel spoons ..	5	
Big glass jars	60	

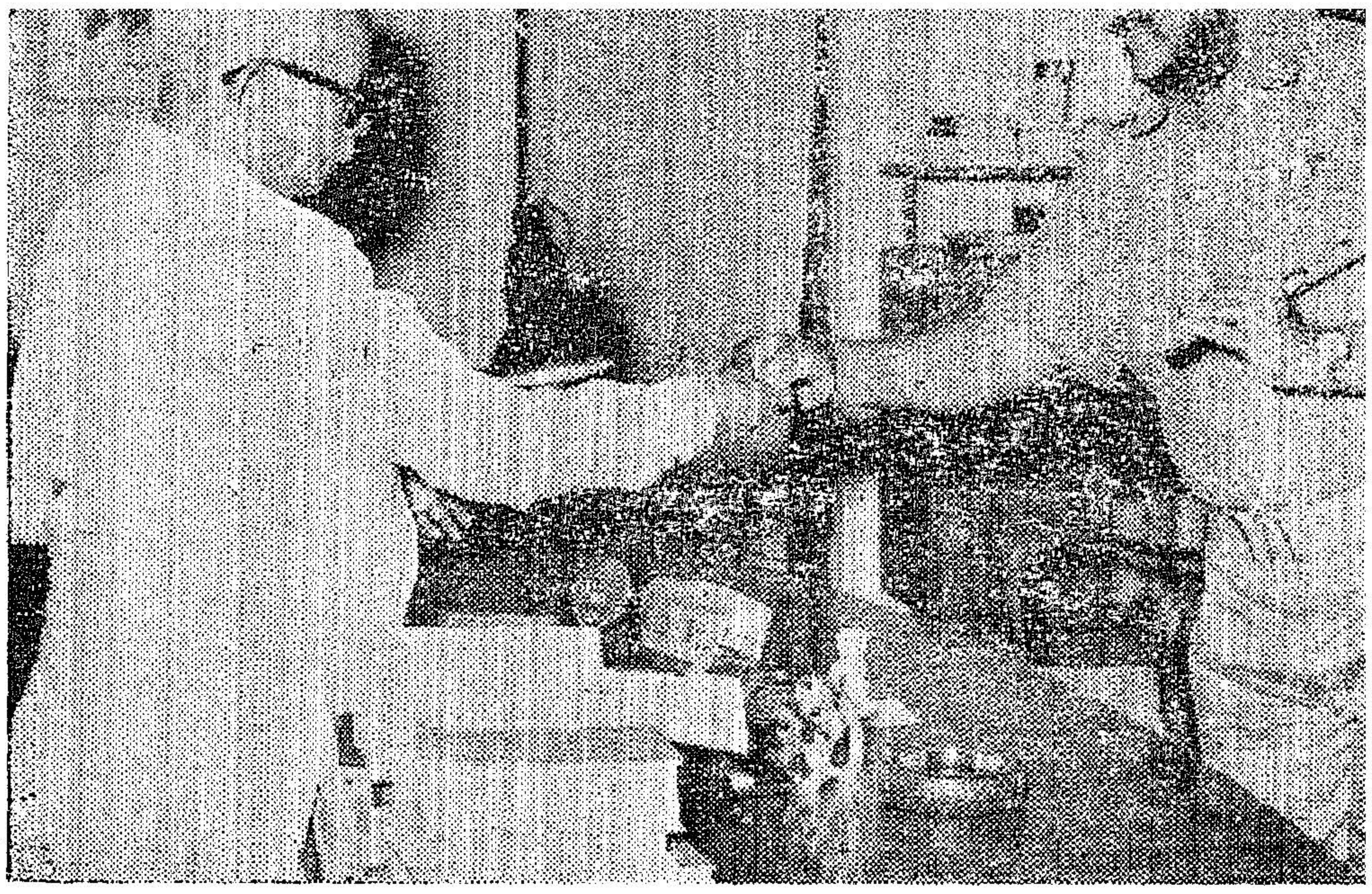
Store-room and Office Equipment—

Two glass Almyrahs	600	
Two racks	70	870
One table	120	
Two chairs	80	
Total		1,342

Recurring expenditure.

Staff—

One Distillery Expert ..	10	17·5
One Assistant	7·5	
Rent for the buildings ..	20	2.5
Total ..		19·5



Lt. Col. S. S. Choudhri is handing over a cheque for Rs. 1,045 for flood relief to Chief Minister on behalf of the 7th Madras Battalion, N.C.C., Madurai.

Cost of Production and Profit—

	Cost.	*Selling price.*	*Profit.*
(1)	(2)	(3)	(4)
	RS.	RS.	RS.
Two dozens of omam water ..	6	12	6
Two dozens of rose water ..	6	12	6
Two dozens of distilled water	6	9	3
Two dozens of nannari syrups	15	25	9
Two dozens of lime syrup ..	15	25	9
Two dozens of orange syrup ..	15	24	9

	Value.
	RS.
Manufacture of 12 dozens of bottles per day for 25 days (approximately).	1,575
Sale of 12 dozens of bottles per day for 25 days (approximately).	2,625
Profit ..	1,050

Further details, if any, needed may be had from the Rural Industrialization Officer, Chepauk, Madras-5.

Madras helps Maharashtra in Livestock Development

Twelve pedigreed, bulls six of Sindhi and six of Gir, have been sold to Maharashtra Government from the Livestock Research Station, Hosur Cattle Farm. The day's milk yield of the pedigree Sindhi bulls supplied varies from 2,000 kg. to 2,800 kg., while that of Gir bulls, varies from 2,134 kg. to 3,700 kg. The Hosur Cattle Farm maintains 1,045 head of cattle consisting of 894 head of pure bred Sindhies, Girs and Hullikers besides a small herd of cross bred dairy cattle. On an average 100 bulls are being released from this farm for breeding purpose both in our State and in the adjacent States.

Intensive Egg and Poultry Production-*cum*-Marketing Scheme

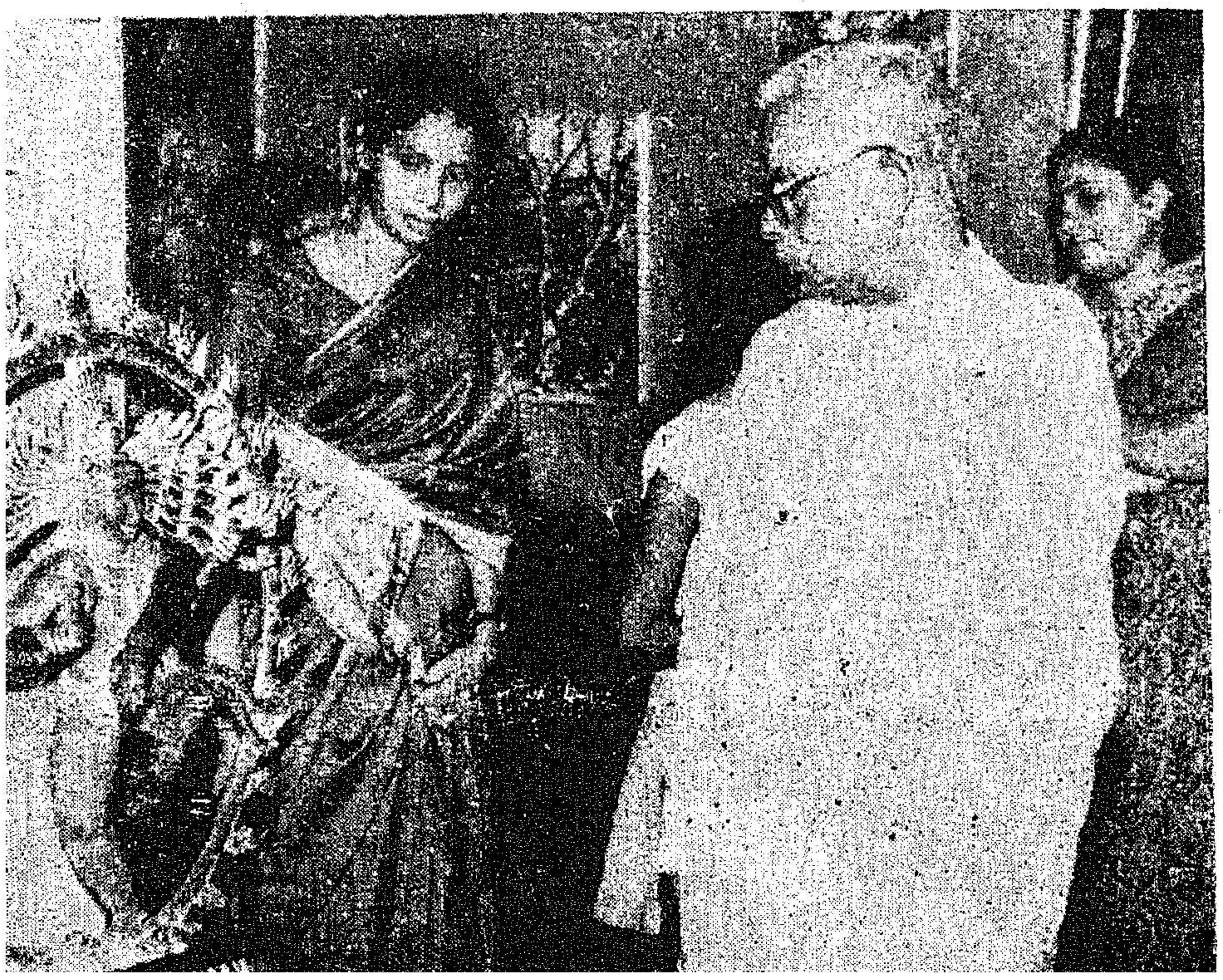
DR. I. D. MANTRAMURTI, G.M.V.C., B.V. SC.,
Director of Animal Husbandry, Madras.

*The inauguration of the Intensive Egg and Poultry Production-*cum*-Marketing Scheme, Kattupakkam, early in 1964, by Sri M. Bhaktavatsalam, Chief Minister, marks a mile stone in the Poultry development activities in the State.*

Poultry in our State is of poor quality with low yield of eggs and mutton–the yield of indigenous poultry being about 50 eggs per annum when compared to the yield of 120 eggs per annum by the exotic birds. Ever since the dawn of freedom and the coming into power of National Government, Poultry development work has been receiving sufficient attention in consonance with the declared objectives of the State, to improve the supply of milk, meat and eggs the greater consumption of which is essential to balance the present customary diet.

Poultry is a rich source of nutrition that can easily be produced at comparatively low cost. Poultry can be produced and multiplised to order with the aid of mechanical means of incubation and rearing. Realising the importance of poultry production the Government of Madras in addition to establishment of Poultry Farms, Poultry Extension Centres, etc., have introduced several schemes to enthuse private Poultry breeders by imparting scientific training of short duration with stipends and aiding them to take to poultry by assisting them to purchase chicks, poultry houses, incubators, etc., at subsidised rates. These schemes have definitely laid the Poultry development on strong foundations. With the intensification of development programmes, it becomes necessary to offer price protection to the Producer and provide ready markets. Under the intensive Egg and Poultry Production-*cum*-Marketing Scheme, introduced early in 1964 which was inaugurated by Sri M. Bhaktavatsalam, Chief Minister, both production and marketing aspects have been combined. The area of operation of the scheme lies within a radious of 25 miles from Kattupakkam. The scheme envisages the production and supply of 10,000 eggs and 300 table birds to the city population. This scheme will attempt to provide atleast one egg per capita per day for atleast 10 per cent of the city's potential consumers of egg and poultry. On this basis 70,000 eggs would be needed daily for the City of Madras. The schemes mainly supplement the present sources of supply for the consuming public and help stabilisation of prices.

Chief Minister, who inaugurated the National Art Gallery and Five-Year Plan Stalls at the All India Khadi and Village Industries Exhibition, is witnessing an exhibit in the former stall.



Three hundred breeders from the area of operation of the scheme will be admitted to the scheme and extended loan assistance of Rs. 1,000 each, in the form of birds, equipments, etc., and the loan will be interest free. Each breeder should maintain a unit of hundred layers and market their products, i.e., eggs and poultry through the marketing organisation of the scheme. Each breeder is expected to sell to the scheme

GALLANTRY AWARDS FOR MADRAS POLICE

The Bombay Humanitarian League has notified the award of the Kendal Humanit Medal to Sri A. Rajagopalan, Sub-Inspector of Police, now officiating Inspector of Police, Crime Branch, C.I.D., Madras, Sri Shanmugam, Police Constable, now in the Directorate of Vigilance and Anti-Corruption and Sri V. Kanniah, Police Constable, Madras City Police in recognition of their meritorious services. Following is a brief of the nature of service rendered by each one of them.

Sri A. Rajagopalan.

On 25th April 1963 at about 4-15 p.m. when Sri A. Rajagopalan, Sub-Inspector of Police (now officiating Inspector of Police) was working in the Crime Branch Office, a P.W.D. employee named Rodricks informed him that a man was struggling for life in the sea, opposite to the Gandhiji's statue and that there was no one to save him, himself being unequal to the task. Unhesitatingly after calling for the Ambulance by telephone the Sub-Inspector rushed to the spot, along with P.C. 519, Shanmugam. They saw the victim exhausted and sinking. Though they knew that the area was infected by sharks, they plunged into the sea to save the dying man. After a hard struggle against the surging waves, they succeeded in bringing the victim ashore. The victim was unconscious and his pulse was sinking rapidly. The Sub-Inspector and the Police Constable rendered him first-aid, resorting to artificial respiration method. After about 15 minutes, the man vomitted water. By this time the Ambulance party arrived and the man was removed to the Government Hospital, Royapettah. He regained consciousness after necessary treatment by the Duty Medical Officer.

Sri Shanmugam.

When several persons in the sea-shore did not have the courage to save the man from drowning, the Sub-Inspector, who was working in the Crime Branch Office rushed to the spot with the Police Constable immediately on hearing the news. Both of them have exhibited courage of an unusual order and saved a human life from a watery grave at personal risk under hazardous circumstances.

On 11th June 1963, the Inspector of Police, Traffic Investigation, proceeded to Government Royapettah Hospital to meet Residential Medical Officer in pick up van, MSW 5235 drived by P.C. 1150 V. Kanniah, attached to M.T. Shed, Madras City Police. The van was parked near the out-patient department while the Inspector was discussing about a road accident case with Residential Medical Officer. At about 10-45 hrs., a girl, aged 10 years (Kasthuri, daughter of Kantha of No. 10, Nallanna Mudali street, Royapettah) who stepped on the inspection cover of a well (wherein the Corporation water is stored for pumping into the over-head tank) slipped into the well accidently.

Sri V. Kanniah.

On hearing the hue and cry from the womenfolk, who had come to the out-patient department, P.C. 1150 Kanniah rushed to the place and found the girl struggling in water 8′ in depth. Unmindful of the personal risk involved, P.C. 1150 without hesitating for a moment, jumped inside the well and saved the girl from drowning and brought her up and removed her to the children ward where first-aid was rendered and the girl completeld recovered from the shock. But for the timely and courageous action and gallantry displayed by P.C. 1150, the accident would have proved fatal.